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Architecture at the Academy and the Salon.

THE French Salon, the Old Salon at the Palais de l'Industrie, has opened its doors earlier than usual this year, earlier even than was at first announced, for the two Salons each endeavour to forestall the other, and the previously-announced date of April 25 for the opening of the old Salon was subsequently altered to the 20th. Consequently we can compare the architectural exhibits there and at the Royal Academy in the same article; but as we must conclude our remarks on the French drawings in this article, it will be more convenient to give them the precedence.

The architectural drawings at the Old Salon at Paris consist of much the usual assortment; a great set of classical restoration drawings on a very large scale; a certain number of large and finely executed drawings which for the most part are obviously either designs submitted in competitions for buildings or academical studies; a number of drawings and sketches of ancient work, including some exceedingly fine and highly-finished examples of architectural illustration; and here and there a few drawings of buildings which appear to be *bonâ fide* commissions, either executed or about to be executed. Owing to the preponderance of the academical element, and the extent to which exhibits of this class seem to be confined to certain school forms of design, one receives the impression that each year's exhibition is almost the same as the last. It is true that last year there was an exception in the fact that the leading set of drawings of the year represented a large practical structure, the Post and Telegraph Depôt;* but this was a very occasional feature. The great defect of the Salon architectural department is that in spite of the beauty of many of the drawings, which in this respect are far beyond what is generally seen at the Academy, the collection is hardly at all representative of the current architectural work of the day, and there seems to be no attempt to render it so.

*Illustrated in *The Builder* for April 10, 1897.

The leading set of drawings this year is M. Pontrémoli's series representing the remains at Pergamos and their restoration; an "envoi de Rome" which has before been mentioned in our columns. The principal drawing is a geometrical elevation of the whole collection of temples, altars, &c., a huge drawing about fourteen feet long, the whole beautifully executed, but when compared with the equally careful drawing of the actual remains it must be admitted that the faculty of imagination plays a large part in the restorations carried out by the students of the Villa Medici. A large detail drawing shows the Altis with its now celebrated alto-relief sculpture restored—and here there is room for other faculties than those of imagination—and an Ionic colonnade over it with wall-paintings in the rear of the columns. Over the central altar rises a slab carved with interlaced serpents; what is the meaning of the black pyramidal shaped mass on each side of this, looking like a hipped roof butting against the central block, is not very apparent. However, the drawings are a very fine set, and M. Pontrémoli has no doubt made his mark with them as a French architectural student of the first rank.

Two models appear in the architectural room, which appear to represent work that is really in contemplation. One is a plaster sketch of a design by M. Deperthes (architect) and M. d'Illzach (sculptor) for a monument to Puget, and is a clever and spirited piece of work of Louis Quatorze detail, forming an oblong mass, flat in the rear and semicircular at the front, the general shape being apparently suggested by that of the ship or ship's prow which forms the crown of the design. In front, under the said prow, is the figure of Puget in an energetic attitude, mallet in hand; at the back is a panel for inscriptions, partly protected by a semi-dome carried out on consoles. The details generally are bold and effective in character. The other model represents a design for a fountain by M. Bartholdi, with a memorial portrait figure at the top; the whole design is also represented by a full-size model in the sculpture court. The design is original; the centre portion is supported by four flying buttresses of elliptical line springing from pedestals on the outer rim of the main basin; the defect of the design is that the Classic tabernacle or shrine in the centre, on the top of which the figure stands, is insufficient in scale for the figure; the arches in it, which are designed as arches for entrance, are only three-fourths the height of the figure above, so that figure and architecture belong to entirely different scales. We should say that M. Bartholdi, who is professedly a sculptor, has not had the assistance of an architect in this design.

Among the large competition designs already referred to, the only one that is worth special remark is that by MM. L. P. Blanc and A. Marcel, described in the catalogue as "Gare Centrale de Bucarest," but which is obviously only a competition scheme, as it is one that unfortunately no railway company would carry out; unfortunately, for it is a very fine and remarkable design of its class. The elevation, on a large scale and drawn and tinted in the usual complete and effective French manner, shows an immense rusticated stone front, with three great arches divided by massive pilaster-like piers, and corresponding to the three parallel semi-circular iron roofs of the interior. At the base of each pier is a buttress semi-circular on plan, carrying a globe which forms a pedestal for a sculptured figure. The whole composition is crowned with a large cantilever cornice with a frieze of Classic ornament interspersed with shields. The perspective view of the interior of the station shows an effective treatment with a series of iron and glass domes and pendentives. There are of course complete plans and sections, and the whole forms not only a splendid set of drawings but a really fine conception for the architectural treatment of a terminal railway station. M. Blanc also exhibits an equally large elevation for the University of Jassy (Roumania), but this is a cold and heavy Classic composition, looking like anything rather than a university.

Among the drawings in the large architectural room is another remarkable set by M. A. Auguste Marcel, called in the catalogue "Salle de Fêtes à Paris," but on the drawings "Galerie Japonaise." "Japanesque" would perhaps be the more fitting adjective, although the exterior does seem to be a treatment in Japanese timber construction carefully imitated. Internally the sections show a perfect riot of detail and colour which may be called a French version of Japanese detail. It is a *tour de force* of coloured architectural drawing; every detail,

down to the elaborately carved cabinets and their contents, being minutely made out.

As usual, the less important architectural contributions are ranged along one of the galleries adjoining the central one of the exhibition. M. Mesnager's "Rendezvous de Chasse," a hunting pavilion in classic style, very much resembles other designs for the same kind of building which we have seen in former exhibitions; but it is worth attention as showing a power of adapting French Renaissance details to a design which exactly expresses what it is intended for—a kind of state hunting-box for a nobleman's domain; it cannot be taken for anything but what it is, though it is far removed from the style in which a building of this description would be treated in England. M. Jasson's "Hospice de Vieillards, à Saint-Julien," appears to be one of the few sets of drawings representing actual commissions; this is in the very plain architectural style which the French architects of to-day affect for hospitals, schools, asylums, &c., all which are treated pretty much alike; plain brick or stone buildings with no ornament except perhaps, as here, a coloured frieze in tiles or terra-cotta. The plan, forming three sides of a quadrangle, is worth note in regard to the fact that the side wings are not joined on to the cross one, but an opening is left between the buildings at the angle, showing a perception of the principal sanitary objection to the complete quadrangle form of plan. M. Legresle's "Un Sanatorium pour des Enfants" shows the same kind of architectural character; a sanatorium for children, in the French idea, being properly treated so as to look as like a mill or factory as possible. M. Rigault's "Propriété de M. D——, à Saint-Etienne" is another of the practicable designs, and consists of two or three apartment houses adjoining each other, which show a little variation from the usual French type of town house of this class: two of the houses, forming one design, have a classic stone front, the remaining portion of the block is Gothic in type and executed in brick with stone dressings, and with a very large corbelled-out turret running up the front; there is nothing remarkable in the design except in the fact of the architect having ventured to depart from the usual *maison-à-loyer* type of French front. The French *maison de campagne* appears in all its horrors in M. Hervey-Picard's design under that title. M. Vernon's "Villa à Saint-Priest" is a more pleasing example, which is to say that it varies from the usual type of French villa, and has less gimcrack about it. A small perspective interior of the new Salon at the Casino at Monte Carlo, by M. Henri Schmit, which might easily pass unnoticed among the large drawings by which it is surrounded, shows a pleasing and bold treatment of a large room with an elliptical arch on each face, carrying an iron and glass dome of very low section; considering that this is for a casino it shows an unusual and praiseworthy absence of fussiness or pretence in detail, and is a good bit of design of its kind. The competition design for a "Caserne des Sapeurs-Pompiers" at Montmartre, by MM. Lecamp & Robert, is worth attention as an attempt, in a solid and monumental-looking design, to adapt classic architectural features to a barrack, while preserving a suitable simplicity and ruggedness of general character. M. Lafon's "Maison de Campagne à Alais" is refreshing from its simplicity of style, and rather amusing to the English eye from its *naïveté* of plan, with the little kitchen and the water-closet next to it and opening out of the same lobby, &c. As we have mentioned the realistic and prosaic treatment common in designs for asylums and other such institutions, we may mention by contrast M. Tony Garnier's design for a "Sanatorium pour les officiers et soldats convalescents des armées de terre et de mer," a wild dream of terraces and pavilions extended in long perspective by the borders of the sea.

The addition to the "Crédit Lyonnais," by M. Bouwens-van-der-boyen, is a good piece of practical business architecture, the flank elevation consisting of massive stone piers the whole space between which is filled in by an iron construction of floors and windows; it does not make so effective an exterior as the Americans produce with their stone casings to steel constructions, but it has at least the merit of being a genuine construction, the stone piers being an actual support to the work and not a casing. The "Banque Russe, pour le commerce étranger, Paris," by M. Brincourt, is another practical building, with a large iron roof of which both a model and section are shown; the triangular space between tie-rods and rafters is apparently intended to be hermetically sealed and is marked on the section "espace d'air confiné." Is this supposed to be a defence against variations of temperature?

Of the modern churches, of which there are two or three examples, the less said the better. The church at Etang-Vergy, by M. Saint-Père, is a design which to English eyes is almost shocking in its bare cast-iron hardness of style and detail and the feeble manner in which the buttresses are planted on anyhow; the only bit with any character is the much-entasised spire with large moulded ribs and alternate bands of brick and stone; this feature is ugly enough too, but not quite commonplace. M. Woog's church at Cesson, St. Brieuc, is a little better, but the quasi-Gothic of the modern French country church is as repellent to English taste as the quasi-picturesque of the *maison de campagne*. Among the restoration drawings of churches are one or two interesting exhibits, among them the set of drawings of the restoration of the Byzantine church of Mervaka, near Argos, by M. Léon Chesnay. These show a church with a centre cupola of the usual late Byzantine type, the body of the church being apparently built of a warm yellowish stone on an irregularly coursed base of large blocks of grey marble, the colour and effect of the materials being very well shown in the drawings, which show also on each face the restoration of a square arcaded porch, of which only the wall-corbels of the arches actually remain. M. Mandin exhibits the drawings for the restoration and enlargement of the little French Byzantine church at Issac, a small domed church without aisles, as usual in that type of early French architecture, in which it is proposed to reface the jambs of all the openings, to add apses forming transepts to the third bay, and to add a new west porch and façade of a simple kind. No realistic perspective view is shown, the drawings are all geometrical, and form an interesting little set, but it is to be feared that not much of the interest of the actual building will be left when the work is done.

Of decorative design there is never much to be seen at the Salon, and that little seldom good; this year however there is one fine piece of work, the "Projet de Salon de réception dans un palais princier," by M. Carré, a longitudinal section of a classic *salle* with coupled columns at intervals, but differing from the ordinary French classic design in the amount of rich colour introduced into it in marbles and inlays, the effect of which is beautifully shown on the drawing. Besides this, the best bit of decorative work is a design for the treatment of the wooden ceiling of the hall at the Château of Plessis-Barbe, by M. Bodin, which is quiet and in good taste. A curious example of French taste is seen in the one design for a sepulchral monument, "Monument funeraire de famille," a little marble chapel with large bronze crucifix affixed to the wall over the doorway; the general design is of a type which is familiar to us in modern French works of this kind, and which has the merit of monumental solidity and a certain solemnity of expression, but in this case all marred by the unlucky treatment of the sides of the monument in imitation of the folds of a hearse-cloth, which at once vulgarises the whole design. In England we should only expect to find this kind of thing among the marble-masons of Euston-road.

It is when we come to the illustrative drawings that we have to bow our diminished heads before the excellence of the French work. This use of the art of architectural drawing the French architects have certainly brought to perfection. To look at the set of drawings of Château Goulaine by M. Chaussepied seems almost as good as having seen the building itself; colour and texture of walling, and every little detail of the work, are shown in such realistic perfection. It is to be wished that the English architectural students who compete for "measured drawings" prizes could see some of these French illustrative drawings, and realise how far they go beyond anything for which prizes are given at the Institute. Among other drawings of the same class may be mentioned the beautiful studies of antique fragments by M. Eustache, the series of copies of the mural paintings of the churches of Peribleptos and Pantanassa, at Mistra, by M. Yperman, the large water-colours of the mural paintings of the Sybils at Amiens, by M. Guédy; and the splendid highly finished perspective drawing of the cathedral of Rodez, by M. Pailhés. On the contrary it must be admitted that in small and more rapid sketches and studies of buildings on the spot the French exhibits are hardly up to our level; they do not show the same feeling for touch and effect as we find in the work of English architectural sketchers. The best are the collection of sketches in the Ile-de-France, Picardie, and Champagne, by M. Grellet.

At the New Salon there are no architectural drawings worth speaking of, but a good deal of furniture and of the class of things called generally "objets d'art," the New Salon making a feature of representing decorative arts and crafts, which the Old Salon (like the Royal Academy) seems to make a point of ignoring. There is little, however, among the furniture and room decoration which would appeal to English sym-

pathies. The fault of the French in these things is that they are too clever; they cannot be content with simplicity of line and structure, everything is restless and contorted. There is a large and much gilded Gothic high altar erected by M. Paul Gout, which however is more striking from its size and splendour of gilding than from any higher quality. M. Roche makes a new suggestion in his model of a cupola formed of translucent faïence through which the light passes, the lower portion forming a series of translucent figures: but it is one thing to do this in a model, another thing to carry it out on a large scale. For a small space—the skylight to a vestibule for instance, something might be done with it. Among the stained glass exhibited is a brilliant and effective window by M. Carot, intended for the staircase of the Mairie at Perreux, and consisting almost entirely of a mass of flowers grouped naturally, only treated in a flat manner; the design, which shows a glimpse of a landscape between the flowers, is entitled "Le Printemps à Perreux." Among the objects in cases placed in the central gallery are many clever things and much beautiful workmanship, unhappily marred by the trail of the "article de Paris" almost everywhere. Among the exceptions are M. Brateau's exhibits of pewter goblets, &c.; a very pretty ring in gold, silver, and iron by M. Carabin, the gold portion being a minute female figure—there is a "Renaissance" look about this little bit of work; a case of pottery by M. Dammouse, of fine form and colour; a very fine cloisonné enamel vase by Mr. Heaton; some good stoneware by M. Jeanneney; some very pretty and delicate blown glass by M. Koepping; various small objects in enamel by M. Thesmar, of most delicate workmanship but spoiled by bad colour; and a case of goldsmith's work and jewellery by M. Nocq, including a hand mirror of which the handle is formed by a nude figure of Narcissus placed as if looking into the mirror; a pretty fancy.

It is an extraordinary change from the large spaces and vast drawings at the Salon to the one little architectural room at the Royal Academy, with its pretty collection of cabinet pictures of architecture. There is nothing of plan or construction of buildings to be learned here; none of that learned and complete setting forth of a building in all its parts and details which we find at the Salon in such sets of drawings, for instance, as that of the Bucharest railway station design above referred to; and the illustrations of ancient work are little more than sketches compared with the monumental drawings of the French architects. On the other hand there is this to be said for our collection, that it is far less academical; it shows, within its limits, greater variety of aim and style; and moreover it does represent, as far as it goes, the architectural work of the day, it gives some indication of what kind of buildings are being carried out. In a general sense the collection is equal to the average in regard to drawing and design, though few important buildings are illustrated, the drawings mostly representing rather small works. The central place is occupied by a fine line drawing bearing the names of Mr. Norman Shaw and Mr. J. F. Doyle, in which we should think the former is the larger collaborator, for the design looks like another edition of new Scotland Yard, even down to the detail of changing suddenly from stone to brick walling without the intervention of a moulding. It is called simply "New Buildings, Liverpool," and we are left to imagine the purpose of the block, though it has a very police-like or prison-like appearance, emphasised by the plain massive cantilevers carrying an iron gallery which runs round the building and abuts against the corbelled-out angle turrets, where doors communicate with it. Without knowing what the building is intended for, it is impossible to form any judgment as to the propriety of its architectural expression. On either side of this are two large water-colour drawings exhibited in the names respectively of Mr. C. W. Whall and Mr. H. Wilson, but which are both Mr. Wilson's drawing. The former represents the east end of the private chapel at Lanark, of which we published some illustrations last year, and which represents the work of Mr. Wilson and Mr. Whall in collaboration. The drawing is of course a fine and bold one in general effect, though it does not show the detail very well. The drawing bearing Mr. Wilson's name is a representation of the new staircase at Welbeck Abbey, and is a splendid piece of colour effect, but it does not convey to us very well what is the actual nature of the work; it is not very easy to tell, for instance, whether the figure work and ornament shown in balustrades and other portions is carving in relief in coloured marbles, or painted or inlaid colour decoration. A French drawing would leave us in no doubt as to this, though it might not have the vigour and freedom of Mr. Wilson's water-colour work. The general style of the work seems to arise from an aim at novelty of effect by using some accepted features of architecture without their usual adjuncts; a row of colonnettes carrying nothing, and square angle newels cut off short at the top with no moulding or finish, but with a statuette perched on them. The kind of effect produced is certainly novel, but we think it wants architectural refinement, and that it is a kind of novelty people may presently tire of. However, it is at all events a splendid drawing.

The two special characteristics of this years architectural show are that plans are even more rare than ever, things in this respect getting worse instead of better; and that there is an unusual proportion of church architecture, so much so that one is inclined to think that the hanging committee (if there is one for architecture, which we have always doubted), finding a good many church designs sent in, determined to hang as many of them as possible, by way of giving a certain special character to this years exhibition. This being so, we may devote the short remainder of this article to a few words on the churches, reserving other subjects for a future number. The most prominent church drawing is the exterior perspective of St. George's, Stockport, by Messrs. Austin & Paley (1790), a fine solid pyramidal group with a large centre tower and spire; the tower, though broken up a good deal with buttresses and panelling, shows a great proportion of solid wall which gives it a very monumental appearance, and the considerable falling in of the angle lines adds to the effect of solidity while leading the composition up to the spire. The general style is perpendicular Gothic but with some special treatment, as seen in the square-headed windows with labels over them in the transept. The authors have fully realised the value of masses of solid wall here and there in the design. It is noticeable, by the way, that the lights in the spire are not carried up vertically in the usual "lucarne" form, but open flush with the raking surface of the spire, and this contributes very much to the solid effect of the design. The interior, shown in a large drawing at the other end of the room, represents the usual orthodox modern Gothic.

In other church designs we see evidence of a desire after originality and novelty. Mr. Matear's large drawing of the west front of Holy Trinity Church, Southport, (1796), shows a design evidently somewhat influenced by the late Mr. Sedding. The front is flanked by octagonal turrets, panelled above and finishing in little cupolas. There is a large west window between, the centre mullion of which is too heavy and out of scale with the other detail. The church shows a very plainly treated north tower in the rear, with the clock face formed of open metal framing placed like a spider's web over one of the windows. There is a variety in this, and it gets rid of the sometimes too prominent feature of the round clock-face forming a spot on the design; but it is not convenient to read the time by. Beneath this Mr. Mountford's "St. Michael, Southfields" (1795) has been intentionally placed, as an example of a different manner of treating the west front with angle turrets, which have here a less Gothic and a more "campanile" appearance. The large arch overhanging the west window abuts on each side against one face of the octagon turret. There is no tower. Mr. Brooks's "St. Peter, Hornsey" (1766), which was published in the *Builder* of August 15, 1896, shows another form of the west turret church without tower; here the turrets are square with an octagon stage at the top, out of which rises a leaded spirelet or spike, after a fashion now prevalent, but which looks a little too much like an architectural afterthought.

There is an evidently growing taste for simplicity in church design, as compared with the day when every church was an assemblage of crockets and finials. We see this in Mr. Spooner's quiet drawing of the "West Front of St. Michael and All Angels, Little Ilford" (1,788), with its narthex forming a lean-to stopped by the two deep buttresses, and the seven-light west window in the middle of a plain wall, with no tracery, the lights carried straight up to the window arch and merely cusped at the head. (To this church there is actually a plan). Other demonstrations in favour of simplicity we see in such designs as Mr. Temple Moore's "St. Peter's, Barnsley" (1,744), with its tracery windows of Decorated style inserted in plain walls between flat buttresses of Norman make; and in Mr. Shackle's design for a church at Exeter, (1,820), where the windows end right up against a single moulding which is all that separates them from the roof. This is carrying naïvété rather too far. In a "Proposed Memorial Church" (1,745) Messrs. Clark & Hutchinson have made a spirited attempt at a new style, with square blind masses of wall at angles of tower and transept, campanile-like battering turrets flanking the west end, and other peculiar features, not without considerable effect; but the centre feature at the crossing, looking like a

joss-house with a pole stuck on it, had better be revised if the building is to be carried out.

Of other church designs we may mention Mr. Prynne's church at Elland (1,741), a very satisfactory piece of modern Early English in orthodox style; Messrs. Murray & Mallows's "Granard Presbyterian Church, Putney" (1,752), with a battering tower and a brick spire, the nave being under one roof but clearstory windows formed by large low dormers rising from the middle of the roof slope (not a very good effect); Mr. Nicholson's "Proposed new Nave and Chancel, Yiewsley Church," an exterior view showing some picturesque treatment of the tower; Mr. Walters's "St. Peter's, East Grinstead" (1,783), which may be called an orthodox modern Norman church; Mr. Goldie's interior of St. Alban's, Blackburn (1,803), a "passage-aisle" church with a very plain arcade with flat soffits, and a lofty clearstory which forms in fact the main lighting of the interior; the same architect's "Hawkesyard Priory" and Church (1,842), illustrated not long since in the *Builder*; Mr. Skipworth's very pretty competitive design for the new church at Cockington (1,871); and Mr. Crawford Hick's interior of St. Aidan's, Leeds (1,903), a modern basilica with a round-arched arcade carried on short columns with Corinthian capitals—a kind of rather too palpable imitation of early Romanesque combinations.

We may observe that the business of making show drawings for the Academy seems as active as ever, and is especially noticeable in some of the church designs. There are several which at first glance impress one as being the work of the same architect, the fact being merely that they are all got up in the same manner by the same draughtsman. It is rather amusing, and rather a satire on the whole method pursued in connexion with the architectural room at the Royal Academy, to reflect that if the architects of these churches had each sent in *his own* drawing, showing the building sufficiently but without the practised *ad captandum* manner of the professional draughtsman, they would probably not have been hung: the selection depending, as it obviously does, on drawing in the first instance and design only in the second place.

NOTES.

Berlin Building Regulations.

THE Berlin Building Regulations, which have been so unpopular, are under revision, and we have had an opportunity of seeing a draft of the new Code. Perhaps the most important feature for the Berlin freeholder will be the modified requirements in respect to the covering of the area of any given plot. According to the new arrangement a division of the site into zones is allowed for, and the depth of each zone is measured from the frontage line. On the first zone, the whole of the area may be covered; in the second zone a large proportion may be covered according to circumstances, and in the third only a smaller portion; but in the actual execution of the building, a calculation will be made of how much of the area may be covered according to the zone system, whilst the actual position of any structure will not be restricted to any particular position on the site; that is to say, subject to certain conditions, a specific superficial area may not be exceeded, but the actual laying out of the site remains with the owner. Formerly this was not the case. At Berlin the building regulations are practically subject to the police initiative and control, and from an English point of view it appears amusing that the police authorities should draft their regulations and publish them without taking the views of the freeholders, their representatives, architects, or any others concerned in building matters. If we understand rightly, the Municipality has scarcely had a voice in the matter, and has only obtained the right of framing resolutions on the draft regulations after very considerable trouble. This explains much in respect to the frequent change in the regulations at Berlin, and the constant friction caused both by the wording of the code and its administration.

Official Reports for the German Government.

WE have referred from time to time to the custom of the German Government of attaching architects and engineers to their foreign Embassies, and we observe from the *Centralblatt der Bauverwaltung* that a further series of their reports is now available. The list which has now been issued includes reports from America, France, Russia, Austria, and the Netherlands, but most of them are chiefly of interest to engineers. Great Britain is not represented on this list, as the post at the German Embassy in London was long vacant, and has only lately been filled. Of some eighty reports specified, those that would appear to interest architects most this time happen to be from Russia. They are records of the Arts and Crafts movement in that country, on archæological research in South Russia, on the development of the City of Odessa, its harbour, and other similar subjects. We also find that the Exhibition at Nischni-Novgorod has been treated of, and lastly, the anniversary of the Architectural Society of St. Petersburg. In regard to Austria, some of the most interesting reports appear to be in connexion with the Exhibition that was held at Buda-Pesth last year. It is to be regretted that architecture is not better represented in these valuable records, though we are at least glad to know that the German Government has sent an architect representative to their London Embassy.

The Employers' Liability Act.

IS the temporary removal of a protection to persons against injury by a dangerous machine a defect within the meaning of the Employers' Liability Act? This was practically the question which had to be decided by the Queen's Bench Division and by the Court of Appeal in Tate *v.* Latham & Son. At the defendant's saw mills was a circular saw, part of the disc of it was below and part above the table. The bench was fitted with a shutter to protect persons from injury by the lower part of the saw and when this shutter was in its place the machinery was complete. But it was removed from time to time, not only for the necessary purpose of taking away the sawdust from under the bench, but apparently also out of mere carelessness, merely because it was in the sawyer's way. The consequence was that the plaintiff—a boy—slipped under the bench and injured his foot. Both Courts came to the conclusion that there was a defect within the meaning of the Act. They were unable to draw a distinction between a case in which a guard was never fixed in position, which would clearly have been a defect, and one in which it was sometimes not fixed. In each instance, there was "a defect in the condition of the machinery or plant." It may seem hard that employers should suffer for the negligence of their workpeople, but it is obvious that were the law not so, those who, like the boy who was injured in the present case, would have to work under much more dangerous conditions than they do at present.

Art Education for Women.

AS the result of a decree of the French Government under date of April 3, in regard to the admission of women to the classes at the École des Beaux-Arts, it is now arranged that sixty female students, between the ages of eighteen and twenty-five, may enter their names for admission to the schools on giving the requisite proofs of artistic acquirement. Those who are passed by the examiners will be placed on the same footing as the male students and will follow the same course of study, theoretical and practical. For the present, and until it is seen whether the number of female students is sufficient to warrant the erection of special rooms for them, they will work with the men, except in the anatomy lectures, which will be given for women in the mornings and for men in the evenings.

Mycenæan Architecture.

IN the current number of the *Jahrbuch* of the German Archæological Society (xi. 4), Dr. Ferdinand Noack begins a series of "Studies in Greek Architecture," which promise to be of considerable importance. The first instalment of these studies deals entirely with architecture of the "Mycenæan" period in its relation to the development of later styles. It is impossible in the space of a brief note to do more than call attention to the interest of the questions discussed and note one or two salient points. Since the excavations of 1893-94 at Hissarlik, all questions of Trojan, and with it of Mycenæan chronology, have necessarily entered on a new phase, and from a consideration of these excavations, Dr. Noack draws a conclusion that, if it be correct, is of the first importance. He believes that the city known as Troja VI., in its thorough-going use of stone, shows a break in the development of the technique of the older cities, whereas at Tiryns, Arne, and Mycenæ, we have the consistent development of the wood and clay technique shown in the primitive city known as Troja II. Starting from this principle, he proceeds to demonstrate his theory that the features of Ionic architecture arise, like those of the Doric style, from "Mycenæan" structural conditions, and are not due, as has often been supposed, to any external Oriental impulse. The Ionic style branched out, he believes, from a common root with the Doric, but its main peculiarities are due to the introduction of stone as a building material. Another point of interest he raises is this. It has been usual to regard the peripteral colonnade of a Greek temple as a later additional ornament. Dr. Noack believes it to have been the primary and only distinction between the house of a god and an ordinary dwelling-house. Later, when this distinction was clearly fixed, it

could safely be omitted. The house for the image of the god became, of course, a necessity only in days when the conception of the god was anthropomorphic. A temple was superfluous for the semi-animal worship we know to have prevailed in early "Mycenæan" times. The paper is at least well worth attention.

Hospital Improvements at Berlin.

IN connexion with the proposed extensions and alterations of the State Hospital at Berlin, the Botanical Gardens, which are Government property and are on a valuable site in the Potsdam suburb, will be sold, and though much of the ground is to be kept as an open space, the authorities expect to make a profit of 300,000*l.* by the sale, after providing new gardens outside the town. This money will be at once utilised for the hospital improvements, whilst another 500,000*l.* which is considered necessary will be spread over five years, it not being possible to take the whole of the work in hand simultaneously. The hospital "improvements" (curious to observe) will involve a considerable reduction of the number of wards and beds, for, whilst there are 1,824 cases under treatment at present, the improvements and the great outlay will only allow henceforward for 1,247 beds to be in use. This reduction is considerable, and it is sure to make itself felt at Berlin; but in that case it will not be the State that has to provide for the larger accommodation, but the Municipality. It is also noticeable that, though there will be greater facilities for the students, the number of cases in the instruction wards will have to be reduced; for this section, which now holds 445 beds, is only to have 360. To outsiders, it would appear that the ambition of the Prussian Government is to provide modern accommodation for a smaller number of patients, and improved facilities for study to a lesser number of students, rather than to allow the present overcrowded state that exists at the National Hospital. This seems to be a step in the right direction, though the Municipality may grumble at having to build further hospitals, and some medical students may have to go elsewhere to learn their profession.

Niagara Falls.

A GREAT deal has been written lately about the two immense Power Companies, one on the Canadian and the other on the American side of the Niagara Falls, but the most of what has been written has been based on the sanguine hopes of excitable electricians. In view, therefore, of the newspaper comments on other power companies, such as those projected for the Nile Rapids and the Zambesi Falls, a little survey of what has actually been done at Niagara is instructive. On the American side the Niagara Falls Power Company is working at a loss, although over a million pounds has been spent and no rental has been paid to the State. On the Canadian side, the Canadian Niagara Power Company have been paying a rental of 5,000*l.* per annum for the last five years for the privilege of having a lease of the Falls subject to the obligation that they will have made water connections for the development of 25,000 horse-power on or before November 1, 1898, and yet they have petitioned for an extension of time of eighteen months. The reason given is that the transmission of electricity to great distances is still in the experimental stage, and that there is no immediate prospect of a market for a large supply near the Falls. Their petition will probably be granted, but as the total cost will come to nearly a million pounds, there is no chance of it paying its way—at least not for many years. Those Engiish lawyers and electricians who got the concession from the Canadian Government were lucky to find capitalists to take it off their hands.

Institution of Electrical Engineers.

MR. BAYLOR'S paper on "Electric Traction" gave rise to an animated discussion recently, at the Institution of Electrical Engineers, showing that electricians are keenly alive to the importance of this new branch of their industry. Several of the speakers thought that in this country sufficient attention was not paid to the most important point in every electric traction scheme, namely, the "bonding" of the rails. A lack of attention to this point might lead to most disastrous results as to the future of the industry. In the United States, where vested interests were not nearly so important, leakage and the consequent electrolysis had made great havoc with the gas and water-pipes. Mr. Preece stated that quite recently a Post Office cable containing thirty telegraph wires had suddenly broken down, and on investigation it was found that part of the lead sheathing had been completely eaten away by a leakage of current from the City and South London Railway. A striking divergence of opinion was shown as to the merits of the three-wire system, but nothing that was said altered our opinion as to the real advantages offered by this method. Mr. Raworth read a paper on "The Generation of Electrical Energy for Tramways," in which he raised many debatable questions. He stated that it would pay an electric light central station to supply the power for a small electric tramway at a penny per unit.

"Asbestic" plaster.

THE paper read by Mr. R. H. Jones at a meeting of the Society of Arts, held on Wednesday last, entitled "Asbestos and Asbestic: with some account of the recent discovery of the latter at Danville, in Lower Canada," was a curious mixture of pseudo-scientific statements and advertisement, interspersed with some really valuable observations on the uses of the two materials mentioned. With asbestos every one is familiar, and it is unnecessary to describe it, but "asbestic" is not so well known. The term is applied to that part of the serpentine rock which remains after the richer veins of asbestos have been extracted from it. This remainder is purely a fibrous material of altered serpentine. It has many uses in the building trades, and is extensively employed in America. It may be pulverised and converted into a cement or plaster; being composed exclusively of asbestos, the plaster is both fireproof and a non-conductor of heat and of sound. Amongst other attributes it is also elastic, and is said not to chip; it will adhere to metal or glass. In plastering, a coating of rough asbestic is first applied with a trowel, and when dry this is surfaced over with a superior quality of the same substance, which has a polished appearance when finished. The cost of the asbestic is given as about the same as that of good lime and sand plaster. Asbestic paper, used more particularly for building purposes, is another manufactured product of this fibrous serpentine; it is intended to compete with wood and straw pulp paper as now used in the building trades. The principal qualities of this variety of asbestos are its being fireproof and its insulating properties; it is said to possess the same attributes as asbestos in these respects.

Delft Ware.

IN the lecture by Dr. Glaisher on Tuesday evening, at the Society of Arts, on "Delft Ware," the lecturer (as usual) used the term in a generic sense and did not confine it to ware manufactured at Delft only. Mentioning that it was in the first instance derived from Italian Majolica, Dr. Glaisher remarked on its absorbent and spongy surface and the rapid painting consequently required on it. The best Delft ware was in blue and white only, and the coloured specimens could not be compared to the blue and white. The white was formed by oxide of tin. The manufacture of Delft ware was then traced historically, from its commencement in 1600 at the town itself, whence it was carried to Rouen, where in 1673 there were eleven factories, employing 2,000 workmen. Nevers was also an important centre from about 1618 to well into the nineteenth century. It was partly in consequence of the French clay not being so absorbent that over-elaboration was the result, the painting not having to be done so quickly—an important instance of the influence of material on art. The ware also formed a ready means of storiation, and the history of the French Revolution, it was pointed out, was in this manner told by French potters; but the subjects treated show a great variety, and the surface was as freely used for pictorial work as canvas, and the work, though seeming coarse on a close inspection, has a very good decorative effect at a proper distance. The manufacture of genuine Delft seems to have stopped about 1850. The lecture was made very interesting by the fact that Dr. Glaisher exhibited some rather remarkable specimens from his own private collection, as also some fine examples from South Kensington.

Scotland-yard.

THIS name recalls a time when the land of the Strathclyde Welsh formed a territorial fief, and Lothian an English earldom, in respect whereof the King of Scotland owed allegiance to the English king. The spot itself was formerly known as "Scotland." It is said that Eadgar bestowed it upon Kenneth III. for a palace for the King of Scots when he came southwards to render homage, as vassal, to the Crown. William the Lion (ob. 1214) is believed to be the last Scottish sovereign who lived there; but in the palace on that site Henry VIII. entertained his sister Margaret after her first husband's death on Flodden Field. In later years it became the home of Milton, Vanbrugh, Beau Feilding, Inigo Jones, Sir John Denham, and Wren, for there was the official residence of his Majesty's Surveyor of the Works. The Palace Court, constituted by letters patent of 1664, was removed thither from Southwark in 1801, to the place where—we gather—was then the headquarters of the Metropolitan Police (1829). The Court, abolished in 1849, was served by judges and officers

of the ancient Marshalsea Court of the Queen's House, being one of record for causes arising within twelve miles, the City excepted, around the sovereign's palace at Whitehall.

Stoke Pogis Church.

IT is stated that the inhabitants of Stoke Pogis have decided to commemorate the Queen's reign by "renovating their parish church" of Stoke Pogis, and that they propose to "shingle the tower with oak shingles, and generally to improve the interior of the edifice." We quote these details from the *Times*. If the church requires repair, by all means let any necessary work be done, but all lovers of English literature may fairly dread the work of "renovating" a parish church around which are gathered more poetic associations than about any other country church in England. "The ivy-mantled tower," the quiet graveyard, are familiar to all to whom English poetry is a living and perpetual treasure. A restored church would take away from Stoke Pogis its greatest charm. If work is necessary for the preservation of the building, it must be done, but it would be pure vandalism to alter the character of an edifice which, as it stands, is a monument of one of the greatest of English writers.

THE NEW GALLERY.

THE New Gallery Exhibition, regarded as a whole, will hardly, we fear, arouse much enthusiasm; there are few notable pictures by leading artists, and a good many mediocre and uninteresting works bearing unknown or little-known names.

Among the important works the finest is Mr. Watts's "Paris on Ida" (106), a quite new treatment of the ancient legend, representing not the three goddesses but Paris alone, and the effect which the vision had on him. He kneels in wonder and rapture; the presence of the goddess is only indicated by a golden haze behind the tree on the right, the picture evidently being suggested by the passage in Tennyson's "Œnone:"—

> "On the tree tops a crested peacock lit,
> And o'er him flowed a golden cloud, and lean'd
> Upon him, slowly dropping fragrant dew.
> Then first I heard the voice of her, to whom
> Coming thro' Heaven, like a light that grows
> Larger and clearer, with one mind the Gods
> Rise up for reverence."

The figure of Paris is of antique and ideal type, both in drawing and colour: a treatment quite in place in an illustration of a purely ideal legend. It is a work in Mr. Watts's finest style, besides embodying a very original ideal. The other important work is Sir E. Burne-Jones's "The Pilgrim of Love" (134), one of the best pictures he has painted lately, and one in which the figures, or the principal one at any rate, have a little more action and energy than we are accustomed to see in the works of this artist. As far as subject and meaning go the picture is very much a counterpart of Mr. Watts's "Love and Life," only that the figures are draped and mediævalised. Love, in light-coloured garments, and a large dart in his hand, steps forward planting one foot on the base of a ruined Gothic pier (what symbolism there may be in this escapes us), and, half turning, gives his hand to a figure in dark drapery just emerging from a thicket of thorns. Here, of course, the allegorical meaning is plain enough, and the painting in other respects shows the well-known style of its author, the usual delicate and placid heads with long narrow chins, and the usual dreamy atmosphere pervading it.

Beyond these two works there is not a single figure subject of the first rank. Mr. Philip Burne-Jones's large and rather ghastly picture 'The Vampire" (15), has a certain power, especially in the look of the opened lips and teeth of the pretty spectre; but those who remember the description of the Vampire in 'The Giaour" will hardly get much of a shudder out of Mr. Burne-Jones's explication of the superstition. Mr. Waterhouse's "Mariana in the South" is an interesting addition to the list of Tennysonian subjects which this artist has painted; Mariana kneels before a circular mirror in a gray wooden frame, in the midst of a large bare hall paved with black and white slabs; at the back a gleam of light comes through the partly opened door and through its bottle-glass panes; but the desolation of the poem is hardly realised in the picture except in the one point of the reflection of the face of the figure in the mirror, where we are shown the expression of hopelessness which could not be fully realised in the profile face of the figure itself. This reflected unhappiness is no doubt a powerful incident in the picture, which in other respects is finely and carefully painted. The same may be said emphatically of Mr. Collier's "Queen Guenevere's Maying" (202), a large picture with half a white horse in it and half of Guenevere and of some other figures, Guenevere seated astride on her horse, as no doubt the author of the Legend of King Arthur imagined her, though the attitude rather shocks the associations of the modern reader of Idylls of the King; but the picture does not interest one, it is altogether too artificial, smooth, and conventional, nor does one discern the joy of May in the Queen's face. Mr. Ollivier's life size allegorical picture of "Thoughtless Chance and Thoughtful Destiny" (232) will do very well as a moral allegory, and has the merit of good colour, but one cannot call it a very striking work. The "Expulsion from Eden," a large work at the end of the north room, is merely a piece of commonplace.

Among works which are a combination of landscape and figures the most noticeable is Mr. Wetherbee's "Dawn the Rosy Fingered" (201), a seaside pastoral at the first light of dawn, with sheep and sleeping shepherd, "Dawn" being represented by a nude female figure with a profusion of light golden hair, stepping over the grass towards the flock. Her head is backed by the light of the dawn over the cold dark sea, but the dawn and the figure seem hardly sufficiently connected, and the figure is somewhat too real for an allegorical apparition. The real strength of the picture lies in the landscape effect. Mr. Arthur Lemon's "Strange Sails" (53) is an original little work, a coast scene where three savage-looking men on barebacked horses contemplate the approach of some distant boats with evidently unfriendly intentions; the bleak coast and the uncouth figures blend into an effective composition.

Among portraits the finest is perhaps Mr. Shannon's "Lord Ross" (240), a young lad of very strongly-marked and characteristic physiognomy, grouped with a fine black hound. Mr. Tuke's "Miss Ritson" (107) is a fine and bold executed life-size portrait of a young lady, and Mr. Tadema sends a small very refined whole length portrait of Mr. Maurice Sons playing the violin. Mr. Sargent has a large full-length portrait (245) of a lady who ought to be known by some such name as "Blowsabella" out of an Elizabethan pastoral, though not in pastoral costume; it is not a work that one would imagine gave very much satisfaction to the sitter. Mr. Shannon's portrait of the "Marchioness of Granby" (33) suggests a St. Veronica, for her head seems to belong to and to be painted upon the oval panel in the rear, and seems somehow unconnected with the body.

There are some good landscapes, some of the best of which, however, rather tend towards experiments in special effects than to the representation of nature as she exists. Mr. East's "Idyll of Spring" (239), for instance, is a brilliant effect of bright light and colour and blossoms, but rather an ideal than an actual or possible scene; and Mr. Fred Hall's "The Drinking Pool" (10), a work painted evidently under French influence, is admirable as far as the cattle are concerned, but as far as the landscape goes it is an experiment towards producing an effect of light and colour to which truth of actual fact and colour is sacrificed. A far more pleasing and successful "landscape and cattle" picture is Mr. Arnesby Brown's "Above the Bay" (177), a very beautiful and delicate pastoral. Mr. Adrian Stokes's "Untrodden Peaks" (28), an Alpine snow scene, is interesting and quite removed from commonplace, as one might expect, and perhaps the colour and apparently woolly texture of the snow is true under a certain condition of light and atmosphere, but it hardly convinces one of its truth. Mr. Parsons's "Allotments" (210) is a flat landscape with a large expanse of sky, pretty but rather weak and sentimental in style, a defect which appears the more marked by contrast with Mr. Thorne Waite's fine bold landscape "Would-be Trespassers" (220), which hangs as a pendant to it on the walls, and rather kills it. Among smaller landscapes which are powerful and effective are Mr. Wimperis's "A Rough Heath" (54), with a very fine sky; Mr. Padgett's "A Village in Holland" (62) which might almost pass not only for a Dutch scene but a Dutch painting; and the same artist's "On the Dunes, Pas de Calais" (88) a very complete little work in which the solitary figure and the scene seem entirely to go together, and which shows a fine drifting stormy sky.

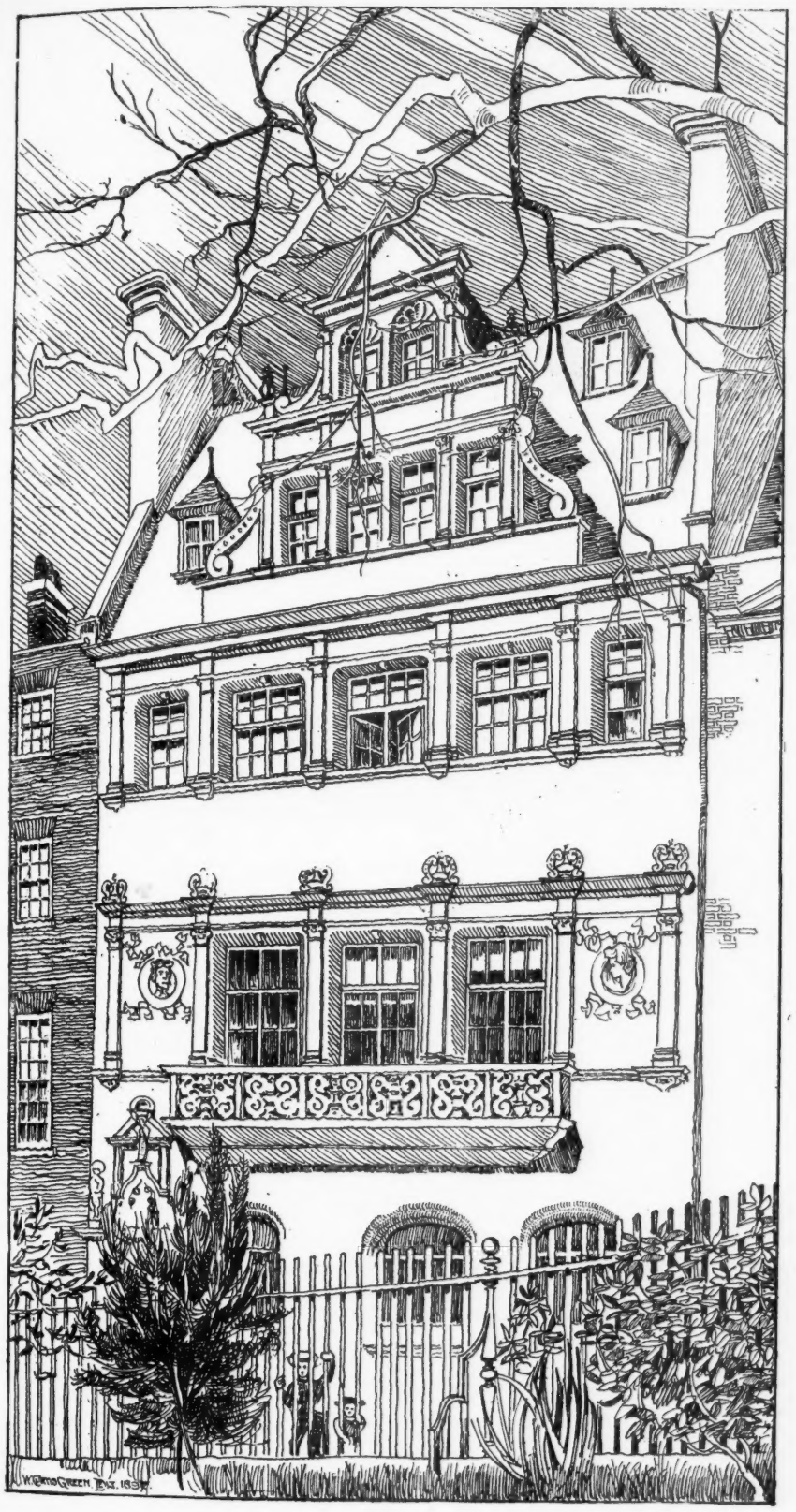
Architectural design is represented (as it was last year) by one drawing exhibited by Mr. Robson; but the pictorial treatment of architectural subjects is represented by a small fine painting of part of the front of a Renaissance church by Mr. Logsdail (206), and by a good watercolour drawing of Canterbury Cathedral by Mr. Newton Benett, hung in the balcony.

Sculpture can hardly be said to be well represented. The largest work, a seated statue of the Queen grouped with two small children, by the Countess Feodora Gleichen, is dignified in effect, and among the smaller exhibits are two very graceful bronze figures, "Evening" by Mr. Toft, and "Pensée" by Mr. Pomeroy.

THE WESTMINSTER COCKPITS.

ON obtaining possession of Wolsey's palace Henry VIII. made many additions to what had been York Place. The enlargement comprised sundry "lodgings," a tennis-court, bowling-alleys, and a cockpit—all on the Park or west side of the main street. For access to these he built across the road two gate-houses, King-street Gate at the south-west corner of the Privy Garden and a little south from the tennis-court, and Whitehall Gate, designed by Holbein (at a spot in alignment with the south return of the later Banqueting House), which was known also as the Cockpit Gate. The Cockpit gave a name, too, to the apartments occupied by Philip Herbert, fourth Earl of Pembroke, who saw from his window Charles I. pass along St. James's Park to the scaffold, and died there on January 23, 1649-50. On February 25, that same year (see the Commons' Journal *passim*), it was "resolved that the Lord Lieutenant of Ireland have the use of the lodgings called the Cockpit." Cromwell's letter to his wife, announcing his victory at Dunbar, is addressed to her at the Cockpit. Then, shortly before the Restoration, the lodging is given to General Monk, and Charles II. confirms his occupation therein. The *London Gazette*, Nos. 432-4, 1670, records:—"Dyed at his apartment in the Cockpit, his Grace, George, Duke of Albemarle." To Monk succeeded Villiers, Duke of Buckingham. The situation of the rooms, pleasantly placed, overlooking the Park and the old Tilt-yard, is clearly defined in Fisher's plan of Whitehall Palace, surveyed before Monk's death, and afterwards published by Vertue. According to that plan the Duke of Albemarle's rooms covered the ground now occupied by the houses in Downing-street, the private garden, and the Treasury buildings, which have a frontage to the Horse Guards parade-ground, once the Tilt-yard. The plan plots "The Cockpit"—a large square room within which is an eight-sided pit or amphitheatre. Moreover, in Newcourt's map, engraved by Faithorne (1658), is depicted, by the south-west corner of the Cockpit Gate, a detached building, octagonal on plan, of two floors, with pointed roof. The two sites of the plan and map are identical. We may safely say, then, in response to Lord Rosebery's recent appeal, that the Whitehall Cockpit is now covered by that block, erected *circa* 1740, of the Treasury buildings, by Kent, which stands northwards of the First Lord's official residence, and overlooks the Horse Guards Parade-ground; and wherein, we believe, the Cabinet still usually assemble for council.* The Cockpit lodgings were entered from the street by a passage which corresponds with the existing main entry to the Treasury Chambers, and from the Park by another corresponding with the present passage from the Parade-ground into Downing-street. Next north to the passage into the main street, is marked on the plan "The Tennis Court," where is now the south portion of the old

* Site cleared in 1733. Kent's full design was for a central portion with two wings, the entire front to have fifteen windows in a row. Only the centra portion, and part of each wing, were built.



Sketches of London Street Architecture—XIII. No. 40, Berkeley-square. Messrs. Ernest George & Peto, Architects.

buildings (facing Whitehall) altered by Soane, and after him by Sir Charles Barry. Soane proposed to carry his design further southwards by a similar block or wing, with a triumphal arch between the two at the Park end of Downing-street. Soane's model may be seen in his Museum; the north block encases Wolsey's Great Hall; his plans show the Cockpit as we see it in Fisher's.

Charles II assigned the Cockpit rooms to the Treasury Commissioners, and from "the Cockpit" many of their earlier minutes are dated; yet they seem to have served for residence as late as 1691, in which year, we read, "the Princess Anne has left the Cockpit . . . . and gone out to live at Sion House." Cromwell issued his edict against cock-fighting in 1654; the sport was soon revived, for in or about 1660 the State Cockpit was in James-street, Bedford-row, where mains were fought until 1752; the name has been preserved there in Cockpit-yard. The King built another cockpit in Birdcage-walk, near the old Cockpit-steps leading from Dartmouth-street into the Park. The site will be seen in Rocque's map (and it seems to be marked in Horwood's of 1799) close by the present Irish Office. The county and other mains were fought there until 1816, when the Governors of Christ's Hospital, with a then rare humanity, refused to renew the lease for that purpose. So another cockpit was established in Tufton-street, Westminster (latterly the St. John's Institute), which was abandoned some eleven or twelve years afterwards for one by name of the New Cockpit Royal, in Little Grosvenor-street, Millbank. Eventually the Act 5 and 6, William IV., c. 59, declared the sport to be illegal. Hatton's "New View," 1708, describes the Treasury Office as kept at the Cockpit; the Wentworth Papers refer to Guiscard's attempt upon Harley's life at a meeting of the Council in the Cockpit, March, 1711. In their "New Remarks," 1728, the parish clerks cite "the Royal Tennis Court," together with "the Cockpit, in which is the Treasury and the Offices of the Secretaries of State, the Wardrobe, and the Plantation Office," also the adjacent "Cockpit-street, by Whitehall," as lying within the verge of the King's Court, for which the Marshalsea Court, latterly removed to Scotland-yard, exercised jurisdiction. Reports of the Historical MSS. Commissioners contain numerous references for a survival of the name of "Cockpit" on the site we indicate above; the Privy Council minutes upon the duel between Lord Mohun and the Duke of Hamilton are written "at the Cockpit," November 18-23, 1712; a letter of Secretary Craggs is dated January 9, 1720-1, "at the Cockpit;" Walpole writes letters there in 1752. The name remained, indeed, within the memory of living persons. We have found mention of a "Cockpit-court" in the rate-books for 1707 of St. Anne's, Soho, Leicester Fields division; the name occurs often in maps and surveys of the last two centuries; the "Cockpit Theatre," near Great Wild-street, St. Giles-in-the-Fields, was converted into a playhouse, the Phœnix, *temp.* James I., and so became the precursor of Killigrew's Theatre, opened April, 1663, in Drury-lane.

SKETCHES OF LONDON STREET ARCHITECTURE:

NO. XIII.—40, BERKELEY-SQUARE, W.

THIS town house was built for Mr. W. S. Salting in 1891, by Messrs. Ernest George & Peto. The front, with its large gable, is of brown Portland stone; the stone balcony comes well outside the drawing-room windows, and a feature of this front is the space between the drawing-room windows and the windows above, and this is accounted for by the treatment of the drawing-rooms, the front one having a large coved or wagon ceiling, while the back portion of the same room is kept square with pilasters and cornices. These rooms are treated in a later manner than the rest of the house, following the Louis Quatorze period.

For the size of the house the hall has considerable dignity, with its marble walls, columns, and staircase, the latter leading straight up in the centre of the hall.

The dining-room and library have Italian walnut panelling chimneys, &c., the latter room having a ceiling of small coffering.

In the marble walls of the hall the doors are of walnut inlaid.

The iron grilles about the entrance door, as also the other metal work in the house, including interesting locks, were executed by Messrs. Starkie, Gardner & Co.; Messrs. Mellier & Co. executed most of the decorative work.

ENGINEERING SOCIETIES.

THE INSTITUTION OF CIVIL ENGINEERS.—The annual general meeting of this Institution was held on the 27th ult., Mr. J. Wolfe Barry, C.B., President, in the chair. The report of the Council on the proceedings of the Institution during the past year was read by the Secretary. The most important matter which had occupied attention was the alteration of the by-laws so as to supplement the existing regulations by the introduction of a test, by examination, of the general and scientific knowledge of candidates for election into the class of associate members. The proposals of the Council having been sanctioned by the general meeting held on March 30, arrangements for giving effect to the new rules were under consideration, and would, it was expected, be settled shortly. Other minor alterations had been made, and a copy of the by-laws thus amended and revised would be placed in the hands of all belonging to the Institution. With a view to promote the interests of many of the country members who were unable to attend the weekly meetings, arrangements had been made to hold a general conference of the Institution in London on May 25, 26, and 27, which it was hoped would satisfy a need that had been felt in an increasing degree with the expansion of the Institution. Since the last annual general meeting, Mr. James Forrest had retired from the post of secretary, which he had held for forty years, and had been appointed Honorary Secretary. An appreciation of Mr. Forrest's services extracted from the President's inaugural address was inserted in the report. Mr. Forrest

The "Meadow-Flowers" Wall Paper. Designed by Mr. Walter Crane for Messrs. Jeffrey & Co. (see next page).

had been succeeded in the secretaryship by Dr. J. H. T. Tudsbery, who had for several years acted as his principal assistant. During the past year, two honorary members, thirty-seven members, 279 associate members, and 14 associates had been elected into the Institution, being a total of 332; while by death, resignation, and erasure, 158 names had disappeared from the register. The roll now numbered 6,204, as against 6,030 at the corresponding date last year. There were also 886 students attached to the Institution, so that the total number borne on the books on March 31, 1897, was 7,090. The income was 22,285*l.* 8s. 10d., and 15,417*l.* 16s. had been received on capital account to meet the expenditure on the new building. The trust funds had realised 466*l.* The expenditure had been 40,394*l.* 8s. 9d. of which about one-half represented the normal expenses of the year, the balance being incurred principally in connexion with the new building, while the expenditure on Trust Funds account had absorbed 468*l.* 11s. 11d. The liability of the Institution to various taxes having been repeatedly questioned, the Council had taken legal advice upon the matter and proposed to act thereon. The effect of the alteration initiated last year in the period of the session had been to make the meetings cover exactly six months, from November to April both inclusive. During the past session twenty-two ordinary meetings were held, at which fifteen papers were read and discussed, the opening night being, as usual, devoted to the delivery of the President's address, and to the presentation of the medals and premiums. The fifth "James Forrest" lecture was given on March 18 by Dr. G. Sims Woodhead, the subject being "Bacteriology," and aroused such interest that it was repeated on March 25. Nine supplemental meetings for students had been held during the session, and six visits to engineering works had been made. The local Associations of Students at Manchester, Glasgow, Birmingham, Newcastle-on-Tyne, and Leeds, continued to do good work. The Engineering Conference, in which the students would be permitted to take part, would afford an opportunity for members of that class to assemble as usual in London in the month of May. The collection of paintings had been augmented by the presentation, by his son, Mr. Henry Vignoles, of a portrait of the late Mr. Charles Blacker Vignoles, Past-President. Since the date of the last report the rooms had been completed and decorated, and the final stage of the operations contingent upon the rebuilding of the premises would be reached during the recess, when the arrangement of the large and ever-increasing stock of publica

Corstorphine Church. (From a sketch by Mr. J. Watson.)

tions and documents would be completed. It was announced that the following gentlemen had been elected to form the Council for 1897-98:—*President*, J. Wolfe Barry, C.B.; *Vice-Presidents*, W. H. Preece, C.B., Sir Douglas Fox, James Mansergh and Sir William Anderson, K.C.B.; *Other Members of Council*.—Alex. R. Binnie, Henry Deane, W. R. Galbraith, George Graham, J. C. Hawkshaw, Charles Hawksley, John Hopkinson, Jun., Alexr. B. W. Kennedy, John Kennedy, George Fosbery Lyster, Sir Guildford L. Molesworth, K.C.I.E., Captain Sir Andrew Noble, K.C.B., B. B. Stoney, F. W. Webb, Sir William H. White, K.C.B., Sir E. Leader Williams, Horace Bell, T. Forster Brown, G. H. Hill, J. C. Inglis, and William Matthews.

SOME NEW WALL PAPERS.

THE improvement in design and colouring which has been taking place in English wall papers of recent years is one of the most satisfactory points in considering modern decoration. While so many branches of the art have deteriorated or been allowed to pander to meretricious taste, the best designers and manufacturers of wall papers have steadily set before themselves an ideal of better design and more harmonious colouring. We are reminded of this by some new designs and methods lately introduced by Messrs. Jeffrey & Co., of Essex-road, Islington.

One of these is the new washable sanitary paper which, made by a new process, is not to be distinguished in appearance from an ordinary paper. The best hand-printed papers by the same firm are mostly excellent. The "meadow-flowers" paper designed by Mr. Walter Crane to be used with the "may-tree" frieze, is a successful example, and, as executed in deep blues and greens, has a sober and quiet effect which is pleasing (see p. 398).

For a design of a totally different kind, the "Falcon" paper and "Diana" frieze, by Mr. Ingram Taylor, is very decorative in effect. The falcons are worked into an all-over conventional pattern in the filling, while in the frieze the running figure of the huntress in flowing robes, chasing the stag, is almost Greek in feeling. Messrs. Jeffrey have also introduced what is known as an "extension," so that the procession is not spoilt by having the figures bent round the angles of a room, but can be properly ended by the insertion of a filling suitably treated.

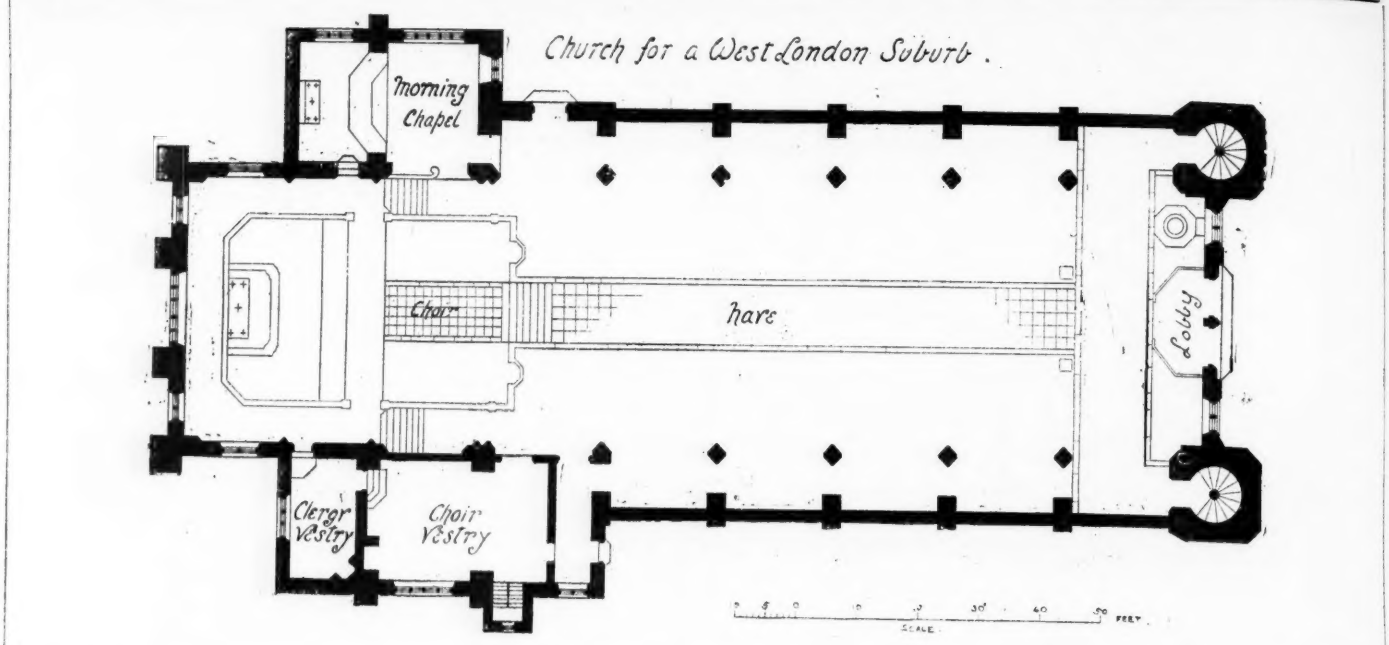
Mr. Heywood Sumner's floral trellis design, in which greens, blues, and pink predominate, is of a different and more open pattern, but suitable in certain cases.

A new feature is Mr. Lewis Day's scheme for a staircase treatment, and we should not omit Mr. Stephen Webb's "poppy" ceiling, a conventional treatment round a circle in a square, and slightly in relief, which can be had plain white or painted. It is made in a new tough material called "relievo," which Messrs. Jeffrey have just introduced

The "Jubilee" paper has quite a decorative effect, and is rich and sumptuous in character, and has very cleverly welded into the design all the insignia and paraphernalia of Royalty and Empire which the present year is to honour.

CORSTORPHINE CHURCH.

THIS quaint little Church of Corstorphine is situated about three miles west of Edinburgh, between the Pentland and Corstorphine Hills. It takes the form of a cross on plan with an additional transept on one of the sides. A portion of the roof is still covered with old grey flagstones. Part of the structure belongs to a chapel which was founded towards the end of the fourteenth century. JOHN WATSON.



Illustrations.

A GRAIN SILO AT GREENWICH.

THIS building is being erected at Greenwich by Mr. S. P. Mumford as an extension to his steam flour mills, for the purpose of storing the grain to be made into flour.

It consists of twenty-three brick bins, average 9 ft. square and 47 ft. deep, each capable of holding about 370 quarters of wheat, with three open floors below and one above. The wheat is brought in barges in bulk, and raised by means of steam elevators, shown in the view, and is in its progress automatically weighed and partly sifted before being put into the bins. As it is required it is taken from the bins, and washed, cleaned, and ground, passing through numberless processes before it is sent out as flour, and without having been touched by hand from its arrival in the barge to its departure in the cart.

The foundations, which stand in the Deptford Creek, were put in by tide work, and have to carry a great weight; the wheat being stored in bulk in the bins or silos, no sacks are used.

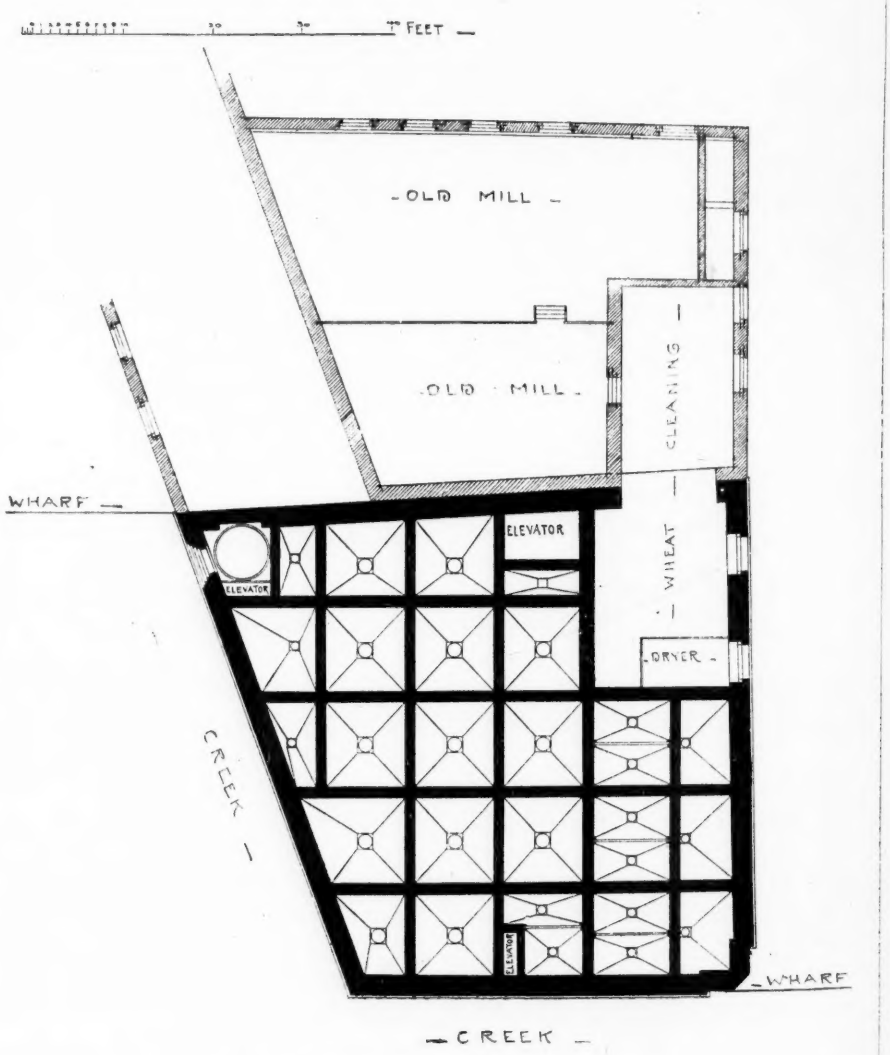
The total height of the building from the river bed is 127 ft.

An attempt has been made to express in the exterior the use of the building. The circular lights under the main cornice give light to the bins.

The whole is built in cement with chain bond in the walls, the river wall is faced with blue bricks, and the upper portion with stocks and red brick dressings and ornament.

The work is being carried out by Messrs. Jerrard & Son, of Lewisham, the clerk of works being Mr. John Cropley, the machinery being supplied by Mr. Henry Simon, of Manchester.

The building is a good example of the application of architectural treatment to a utilitarian structure. The architect is Mr. Aston Webb.



Grain Silo at Greenwich. Plan through Silos.

CHATEAU DE BUILLON.

THIS is the country residence of M. Jas. Tissot, the well-known French painter, near Besançon, in the south-east of France. The château was originally built about the beginning of the eighteenth century, and has recently been considerably enlarged and remodelled. The view shows the garden front. The wings, the arcade, and the enclosure of the fountain or garden court, are all new, as well as the semicircular portico in the centre of the entrance front. It is built of stone quarried on the estate, of a warm white toning to a blue grey in colour, very hard and firm in texture. The enclosure walls are of red brick with dressings of the same stone. The work has been carried out by M. Pateu, contractor, of Besançon, with M. Vieille, of Besançon, as resident architect.

Close to the château on the right is M. Tissot's studio, illustrated in the *Builder* of June 15, 1895, and behind the trees on the left are the new stables and other buildings. Around the house and studio an extensive formal garden is now being laid out, in excavating for which the remains of the old Abbaye de Buillon, of which this is the traditional site, were uncovered. Portions of several of the nave piers were found *in situ*, with their archaic carved capitals of about the tenth century, and these have been carefully preserved.

The site is a very fine one in the Jura country, in the valley of the Loue, a splendid river flowing at the foot of the high wooded rocks seen in the background of the view, which is from a sketch made on the spot.

J. M. BRYDON.

CHURCH FOR A WEST LONDON SUBURB:

WEST ELEVATION.

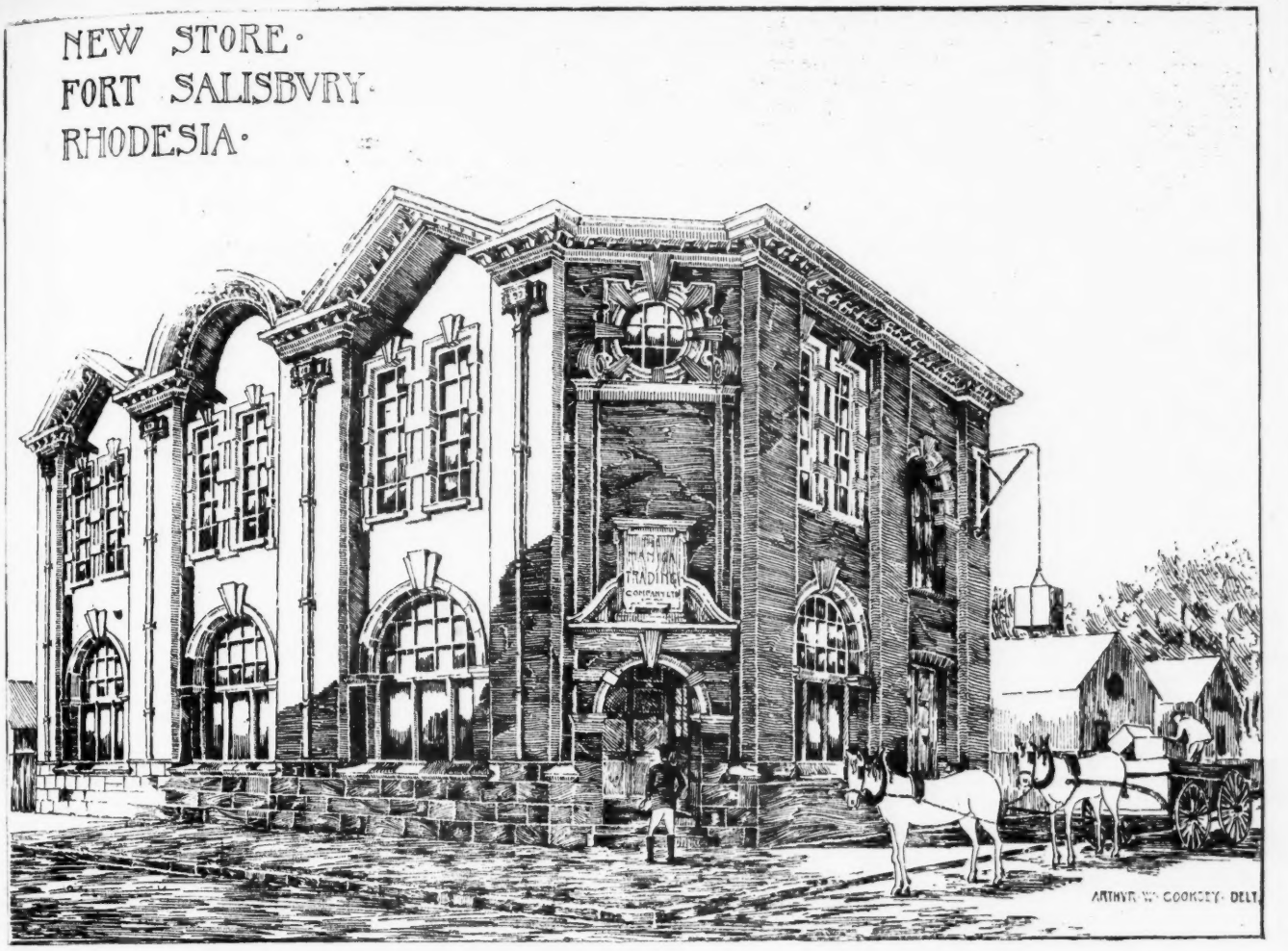
THIS is a design for a suppositious site, and similar in conception and general treatment to that for St. Oswald's, Fulham, but much larger, and with a western gallery reached by two flanking turrets, which appear in the drawing now reproduced.

This church was intended to seat 1,000 people.

E. P. WARREN.

SOUTH AISLE WINDOW, ST. PETER'S, SAFFRON HILL.

IN this window the figures of St. Peter, St. Paul, and St. John, occupying the upper



portions of the three lights, are represented in crimson and purple robes, as martyrs, standing beneath the trees of Paradise. Their martyrdoms are depicted below.

In the lower panels all the small figures appear in different reds and crimsons; while white glass is used for the martyrs themselves.

In painting the glass I have used as little matt as possible, leaving the surface, which is of beautiful texture, perfectly clear in the lights. MARY LOWNDES.

NEW STORE, FORT SALISBURY, RHODESIA.

THINGS connected with Rhodesia are of interest just now, and we give here a sketch of a new warehouse built at Fort Salisbury from the design of an English architect, Mr. A. W. Cooksey.

The building is a new store for the Manica Trading Company, and is the first of several to be built in other towns to replace the existing galvanised iron buildings.

The whole of the joinery has been executed in teak by Messrs. Josolyne & Young, of Borough High-street, London. The constructional iron and steel work has been executed by Messrs. Brownlie & Murray, of Glasgow, and the rain-water gutters, spouts, &c., by Messrs. Thomas Elsey. The glass, brass furniture, and other fittings have all been sent from this country, including the hoist, which has been supplied by Messrs. Arnold Goodwin & Sons, Southwark. The building itself is to be faced with a very good local red brick.

ARCHITECTURAL SOCIETIES.

ARCHITECTURAL ASSOCIATION DISCUSSION SECTION.—At the tenth meeting of the Discussion Section of the Architectural Association for this session, which was held at 56, Great Marlborough-street, W., on March 24, a series of short papers was read on "The Progress of Architecture during the Reign of Queen Victoria." Progress in architectural art was dealt with by Mr. H. R. Appelbee, who described the dead Classicism which was just giving way at the beginning of the reign to the archæology of the Gothic revival, which soon became rampant, only to be succeeded at a later period by a resuscitation of Renaissance architecture more or less archæological. The Crystal Palace was perhaps the one unique building of the reign. At the present time, on looking back, we might believe that progress had been made through these various revivals towards a fresher and more original style, of which the present time showed some hopeful signs.—Progress in construction was interestingly spoken of by Mr. Matt. Garbutt in his paper, in which the influences of steam power, machinery, iron, and terra cotta, were noticed. These forces and materials, together with the revived use of concrete, had enormously advanced the constructive arts.—Mr. C. H. Strange read a very interesting paper on the architectural literature of the period, in which he noticed the very great influence of books illustrating both foreign and domestic work; and the not less important bearing on architecture of the new and vigorous thought of the times, as expressed in the writings of Carlyle and Tennyson, Ruskin and Browning, of the results of the vast amount of research and erudition contained in the voluminous records of the various learned and scientific societies; and of the lectures and essays of such men as Barry, Viollet-le-Duc, and William Morris. — Progress in sanitation was next recapitulated in a paper by Mr. A. E. Young, who read a letter containing the reminiscences of a sanitary engineer in practice forty years ago. The old conditions of water supply, heating of buildings, lighting, ventilation, drainage, and sewage disposal were compared with those now existing; while the enormous increase of protective legislation in connexion with building and with the housing of the working classes and such matters was noticed. — Mr. A. W. Waddington read a paper which dealt with progress in architectural education, as seen in the Architectural Association and other kindred institutions, whose sole or partial object was the study of architecture with a view to its advancement. For the architectural student of fifty years ago the works of Vitruvius, Palladio, and one or two others may be said to have contained the whole gospel architectural. At the present time text-books of design and construction were innumerable, while the institutions, whose main object was the training of students for the practice of architecture, had mostly sprung up within the present reign—until at the present time the greatly-increased facilities for travel, sketching, reading, and otherwise gaining architectural knowledge were so numerous that we were fully justified in deeming that progress in this department had been very great.—The meeting was adjourned till April 7 when the papers were discussed and commented upon. The two meetings were productive of a very interesting review of the progress that has been achieved in matters architectural during the Queen's reign, which has been so marked by advance in every department of civilised life.

EDINBURGH ARCHITECTURAL ASSOCIATION.—At an ordinary meeting of the Edinburgh Architectural Association, held on the 21st ult. in the Royal Institution—Dr. R. Rowand Anderson, President, in the chair—a large number of drawings of old Scottish work by students of the Applied Art School were exhibited, and explanatory historical and architectural notes on them were read by Mr. J. Forbes Smith and Mr. Ramsay Traquair, students. Among the subjects of the drawings were Holyrood Abbey, Craigmillar Castle, Argyll's Lodging at Stirling, and Cowane's Hospital. The Chairman, in proposing a vote of thanks to Messrs. Ramsay Traquair and Smith for their communications on the interesting buildings they had been studying, said that the Association, in devoting one of its evenings to an exhibition of the work of the students of the Applied Art School, was desirous to make it known, especially to the young men who were to follow applied art, that the Association was doing its best for them, because it made annually a handsome subscription from its limited means to forward the cause of education, and it desired to make it known that it did not limit its subscription to benefiting those only who were to follow architecture, but that it gave its support to a school which, in carrying out its system of education, made no distinction between the architect and all other art workers—that was to say, that the scholarships and other awards at the disposal of the school could be obtained and held by the decorator, the sculptor, and any other art worker equally with the architect. The Association also desired to emphasise the great importance of the study of ancient work, in all its departments, as a true

foundation for the future work of the artist. Work of the character they saw that night might be described as analogous to anatomy in the study of medicine. They brought the student into actual contact with work of all kinds. He was taught to dissect, to analyse, and to work out for himself all the reasons that gave rise to the various features he saw in buildings. All artists of eminence had recognised that the study and the analysis of ancient work were among the most important factors in the education of all art workers, and the Association desired to make it known as widely as possible that the Applied Art School held out every inducement to students, within its, he was sorry to say, somewhat limited means, to come and perfect their education.

DEVON AND EXETER ARCHITECTURAL SOCIETY.—The annual meeting of the Plymouth, Devonport, and Stonehouse branch of this Society was held at Plymouth School of Art on the 22nd ult., Mr. Charles King presiding. The report was considered satisfactory, meetings and excursions having been held at regular intervals during the year, and several matters of considerable importance to the local members of the profession have been discussed. The Chairman, in his address, expressed the hope that the members would make the coming season even more satisfactory, and spoke of the desirability of an *esprit de corps* among the members of the profession generally. The ballot for the election of officers resulted as follows: Chairman, Mr. C. King, re-elected; Committee, Messrs. H. G. Luff, M. A. Bazeley, B. P. Shires, J. H. Dwelley (re-elected), and A. G. Bewes; Hon. Secretary and Treasurer, Edgar M. Leest, re-elected. Votes of thanks were passed to the retiring officers, on the motion of Messrs. Shires and Bazeley.

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE.—ARCHITECTURAL CRAFTSMEN'S SOCIETY.—Under the auspices of this Society, a paper was recently read on "Steel and its Use in Structures" by Mr. Kendrick Edwards. Mr. James Lochhead presided. The paper treated fully of the Siemen's system of steel manufacture, and the treatment of steel ingots in the cogging mill. Mr. Edwards then compared the relative values of steel and iron, with reference to weight and cost for the same strength, showing the decided advantage for most purposes of steel over iron. In connexion with structures many practical details were discussed, as showing faults and points to be avoided in everyday work, as well as the theoretical correctness of design, and in connexion with this the lecturer asked for more attention on the part of architects and engineers to the matter of calculations and detail. A discussion followed, in which Professor Gourlay took part, and in closing it the Chairman proposed a vote of thanks to Mr. Edwards for his paper.

ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.

A HOME Counties District Meeting of the members of the Incorporated Association of Municipal and County Engineers was held at the Town Hall, Dover, on the 24th ult.

Mr. F. J. C. May, C.E., of Brighton, presided, and amongst those present were Messrs. Santo Crimp, London; W. Weaver, Kensington; Norrington, Lambeth; J. P. Barber, Islington; Dodd, Wandsworth; Savage, West Ham; Laffan, Twickenham; T. Cole, Westminster, Secretary; Mann, Sevenoaks; Campbell, Canterbury; Blair, St. Pancras; E. Pritchard, Birmingham; Hooley, Nottingham; Fowler, Manchester; Price, Birmingham; Yabbicom, Bristol, &c.

The Mayor of Dover having offered the members of the Association a hearty welcome to the town,

On the proposition of the President, Mr. Laffan, of Twickenham, was re-elected honorary district secretary.

Mr. H. E. Stilgoe, Borough Engineer, then read a paper on "Some of the Public Works of Dover." The paper was mainly descriptive of the arrangements made for scavenging the town. Hitherto the work has been carried out under contract. The house refuse had been collected every day, the pails containing the same being placed on the edge of the pavement or within the forecourts, where such existed, early in the morning, and for the most part removed by ten o clock. The contract system was by no means good. First, the horses, carts, &c., were anything but a credit to the town; secondly, there had been in the past a difficulty in getting the work done as expeditiously and regularly as it should be, particularly with regard to the collection and disposal of house refuse. The Council had, consequently, determined to undertake the work themselves, with their own staff of horses, carts, and men. The present cost of the work by contract was 3,372*l.*, and the estimated future cost 4,112*l.* It would, therefore, be seen that the estimated annual cost by the direct contract system was 740*l.* in excess of that of the contract system. The amounts of the contracts for this work had been increasing steadily year by year, and the slight additional expenditure which might be expected under the direct control system was well balanced by the greater efficiency.

The President said he greatly approved of the daily system of collecting house refuse, though he had not been able to adopt it at Brighton, where the collection was made weekly. He congratulated the Dover Corporation upon having taken the advanced step of a daily collection. The second principle in the paper appeared to be the collection of refuse and the scavenging of the streets by a staff in the direct employ of the Corporation, as against the system of doing the work by contract. On that point he felt very strongly that the work should be entirely in the hands of the Corporation.

Mr. Collins, Norwich, thought the Corporation had no power to compel householders to put the refuse outside the houses; though he admitted that when they had to go into the houses to collect the refuse it made it a very slow process.

Mr. Read, Gloucester, said a similar system was in operation at Gloucester.

Mr. Campbell, Canterbury, said he was greatly in favour of Corporation's undertaking this work themselves, as hired men were not so directly under control as their own staff.

Mr. Weaver, Kensington, admitted that there was not the slightest doubt that men working for contractors would do more work than men working for Corporations; but, at the same time, he argued that the work was never so efficiently done. The Corporation would have to face an increased cost, but they would have the work much better done.

Mr. Barber, Islington, said he also agreed that the work would be much more efficiently done by the Corporation employing their own staff.

Mr. Yabbicom, Bristol, said that five years ago the Corporation of that city undertook such work, and the change had been made with very satisfactory results.

A vote of thanks was unanimously accorded to Mr. Stilgoe for his paper.

Mr. Stilgoe then read a paper on the Dover Corporation electric tramways. He said the rapid development of building operations on the new estates being laid out in the borough, and the advance of commercial enterprise in connexion with the coalfields and the proposed new national harbour at Dover, had made the construction of tramways in the town almost a necessity, particularly from the point of view of conveying the working population to and from their work, and for the general convenience of the public. A Provisional Order was obtained, and subsequently confirmed by the Tramways Orders Confirmation Act, 1896. This Act gave the Corporation, as promoters, the power to work the tramways by horse or mechanical traction (except steam locomotives), and the power which had never been granted to a Local Authority before, viz., that of working the tramways. The gauge was 3 ft. 6 in., and was decided by the narrowness of one or two of the streets through which the line passed; but in the interests of economy of the initial cost of permanent way he would have recommended it in preference to a broader gauge. They had adopted the electric overhead trolley system of traction. Acting on the advice of their electrical adviser, Mr. S. Sellon, who had carefully considered the question of whether it would be more advantageous for the Corporation to have its own power station or to take the necessary current from the Dover Electricity Supply Company, they entered into an agreement with that Company to provide all the power required for working the tramways at a price of 3d. per Board of Trade unit, subject to reductions on a sliding scale as the consumption of energy increased. This installation possessed features of unusual interest which deserved the careful study of all interested in the success of either tramways or electric lighting stations. The well-known disadvantage that all electric supply stations laboured under was the want of a day load, and the consequent length of time that the plant was not only not earning a dividend, but that its stand-by losses were constituting an actual drawback to the dividend-earning capacity of the undertaking. Tramways, on the other hand, found the inevitable fixed charges in connexion with a generating station (and particularly with those of smaller size) were a serious consideration, and made it possible for a tramway to purchase its supply of electric energy from an electric lighting station at a price which, while yielding them a fair profit, would be below the cost at which the tramway could generate its own electricity. The Dover Corporation was the first body which had practically grasped the economic possibilities of the problem before them, and the Dover tramways would be the first tramways to be worked from an existing electric lighting station. This pioneer movement and its results would be watched with much interest by all municipalities interested in the success of their electric lighting stations.

The President said that some time ago Brighton turned out in thousands to meet the great display of motor-cars from London, but the thing ended in fiasco, and only five cars reached there. But the idea of the motor-car was growing, and some enterprising men in Brighton proposed to have motor char-à-bancs to take people to the Dyke; but the motor had not been licensed.

Mr. Yabbicom, Bristol, said that in Bristol the overhead electric system was appreciated, but it was a disfigurement of the streets. Though the Bristol Company had not succeeded in obtaining the extension which they had hoped for, the public had taken the matter up, and they hoped, by bringing pressure to bear upon the Corporation by the ratepayers, to get an extension of the system.

Mr. E. Pritchard, Birmingham, approved the Dover policy of municipalising the tramways. He believed they had a thoroughly workable system; but as a result of the electric lighting plant not belonging to the Corporation, they were going to pay what he considered the excessive sum of 3d. per unit for the electric power.

Mr. Lobley, Hanley, said that a good deal had been said about the appearance of overhead wires, but it was a remarkable thing that every deputation which had gone abroad had come back converted to the trolley wire (Mr. Price: "No")—not Birmingham. He was prejudiced himself some time ago, but after he had been in Boston twenty-four hours, he had ceased to notice the trolley wire. He could not agree that the conduit system was the best. With regard to cost of electricity, he would be glad to get 1½d. per unit in Hanley.

Mr. Price, Birmingham, said he had been fortunate enough to be one of the deputation which visited the Continent recently to investigate the various systems of electric traction. The result of their investigation was that they would not on any condition sanction overhead wires in Birmingham. In Birmingham they had been engaged for years in removing wires from the streets; it would be folly to go back and put wires in the streets. He agreed that, commercially, the overhead system was economical; it was cheap to install, and the cost of working was not greater than any other system. The difference of initial cost had been somewhat exaggerated. The cost of equipping a good overhead system was 7,000*l.* a mile; and a good conduit system had been put down for 10,000*l.* a mile. The price charged per unit for electricity was not more than 1½d. anywhere on the Continent.

A paper by Mr. A. T. Walmisley, C.E., Engineer to the Dover Harbour Board, on groynes, was taken as read. In the course of his paper, the author remarked that the ambition of every maritime town under municipal control was to combine the maximum advantages of a seaport with a minimum of its dangers. This fact gave primary importance to the maintenance of cliff faces, the retention of a foreshore, and the execution of such works of protection as were necessary to secure these objects. A shingle beach was the natural protection of a coast, as the most erosion and the greatest encroachments of the sea occurred in places where shingle was deficient, or where groynes were not properly maintained; but where groynes had been properly set out and maintained they had exerted an influence to protect a coast or wall against which they abutted. They should, as a rule, be directed towards the prevailing

dangerous wind, and if the coast suffered from both quarters, say, from south-east and south-west winds, land ties on each side of the groyne should be introduced. Care must be taken to provide ample strength at the intersection of the inclination of the groyne with the level of high water, ordinary spring tides, owing to the momentum of the waves being greatest at the turn of the tide. While there was no subject so dependent upon local circumstances as the construction to be adopted for a groyne, he directed attention to examples of groynes with timber verticals, and also with iron verticals, the latter generally consisting of double railway metals with 3 in. or 4 in. planking intervening. Also a box groyne system, suitable for situations where a broad base foundation was needed. In the case of timber bolted between old rails the practice had sometimes been to weld the two metals together at the point, necessitating the expense of heavy labour. At Sandgate this was obviated by the introduction of an improved pile point, devised by Mr. Stilgoe, and patented by him. The point or shoe was made with a V-shaped head, from which rose a shank contrived to receive the vertical railway metals which were connected therewith by bolts. A system of open groynes, which had been advocated by Mr. A. Dowson, consisted of uprights driven into the foreshore, having horizontal gratings attached to them, which it was alleged trapped and retained the shingle. The author preferred the addition of diagonal boarding as well as longitudinal boarding, which tended to prevent apertures in a groyne where beach could work through, and also served in very exposed situations to tie the groyne well in, both at the head and foot. The storm angle of the beach upon the south coast was approximately 1 in 10, and this formed a ruling gradient for intermediate groynes upon a foreshore. The critical time was after a gale of wind in winter. Groynes did not create shingle; they only arrested it, and this arrest needed to be judiciously arranged. There was no doubt that when, by their aid, beach could be raised, the erosion of cliffs was reduced to a minimum by the check upon the wave action which otherwise would dash against an unprotected cliff. In conclusion, the author said that the danger arising from groynes should not escape attention. They produced ill as well as good effects, because it not infrequently happened, that whilst sand and shingle might be collected upon the windward side of the groyne, all such accumulations were simultaneously prevented from taking place on the lee side. Hence the situation and direction of the groynes to a foreshore should be studied from all points of view.

During the day the members visited and inspected the new harbour works, the electric light works, the new town depôt and stables, and the tramways which are in course of construction. The Mayor of Dover entertained the members to luncheon at the Town Hall.

FIRE-CLAY MANUFACTURES.

THIS was the title of a paper read by Mr. W. H. Allen before the Northern Architectural Association on the 24th ult., at Messrs. Harrimans' Works, Blaydon-on-Tyne.

After a few preliminary remarks, the author proceeded to deal with the raw material, fire-clay. "A good fire-clay," he said, "should have a uniform texture, a somewhat greasy feel, and be free from impurities. Silica and alumina are the chief substances of which fire-clay is composed. The proportions of these two substances vary very much in the clays obtained in Northumberland and Durham; but I should consider a fair average to be as follows:—50 to 55 per cent. of silica and 30 to 27 per cent. of alumina.

The great bulk of the clay raised is used in the manufacture of fire-bricks for heat-resisting purposes, but of this class of manufacture I do not propose further to refer.

There is a fire-clay of very fine quality, and in many respects different from that which I have just spoken of. This clay is found apart altogether from the coal measures. It is also different in colour, being of a reddish-brown tint instead of a slate grey. It possesses a very dense body when burned, similar to that of stone-ware. The outcrop of this clay is found and worked a little to the north of Corbridge.

I will next speak of the treatment of clay. It is delivered out of the pits mostly in large, hard pieces, and has to be ground into a powder of varying degrees of fineness or roughness, according to the article into which it is to be manufactured. If for heat-standing purposes, it has to be ground what we term 'rough;' if for treatment for salt-glazed goods it has to be ground finer, and if for white or cane goods it has to be ground finer still, and for this latter purpose carefully selected so that no nodules of iron-stone may be left in the clay, as in that case it would fuse at the great heat in burning, and spoil the goods. The modern method of grinding is as follows:—The lumps of clay are tipped into a perforated pan mill some 8 ft. to 9 ft. in diameter. This pan revolves, and revolving within this pan are two metal rollers. The clay is carried under the rollers by the revolutions of the pan, and is thus crushed by degrees into powder which gradually finds its way through the perforations in the bottom of the pan. Underneath the perforated bottom of this pan is a cast iron saucer, which receives the powdered clay thus passed through the perforated mill. It is then carried round by an iron arm, so arranged that all the ground clay is forced into a well or huge pocket a little below and at one side of the foundation of the mill. Working down into this are the elevators which fill themselves with the ground clay, and carry it up to a higher story any height that may be required, and then empty themselves into a shoot, which conveys the clay into a riddle.

This riddle is sexagonal in form, say 7 ft. or 8 ft. long and 3 ft. or 4 ft. in diameter. This is kept revolving, and its action in so doing allows the fine clay to pass through the wire, forming the riddle into a further shoot, which, in its turn, delivers the clay of the required degree of fineness to wherever it may be wanted. The wire of these riddles is of varying degrees of fineness, in some cases fifteen meshes to the inch, in others only five meshes to the inch. Whatever particles of clay are too large to pass through the riddle or sieve (for practically the riddle is only a large sieve) are returned to a separate shoot, that, in its turn, conveys the rejected particles of clay back to the pan-mill to be re-ground.

The clay that has been passed through the riddle and delivered to its destination is now ready for mixing. For this purpose it is put into a pan-mill with a *solid* bottom. This pan-mill also revolves, and has within it two revolving rollers. A sufficient quantity of clay is put in, and as this is being done water is added to reduce it to a plastic condition. The metal rollers passing over this wet clay knead, prepare, and give it body, the required stiffness being regulated by the supply of water to the clay. The men in charge of this mill can tell by experience when the clay is ready for the machine or mould. It is then taken out and ready for manufacture.

There are other methods of preparing the clay, but the foregoing is the most modern, and I believe the most effective. In the manufacture of all the varied articles made by my firm, the clay is prepared up to this stage for every one of them in the same way, rough, medium, or fine clay going through the same process, but not through the same riddle.

I have now to describe how the various goods are manufactured from the prepared clay. Firstly, I will take the process of manufacturing sanitary pipes. These are all made by a properly constructed pipe machine, which consists of (1) a steam cylinder, (2) a clay cylinder, (3) a contrivance for forming the inside of the pipe, (4) another for forming the outside of the pipe, and (5) one for moulding the inside and the outside of the sockets.

The steam cylinder stands on a metal frame placed on the strong beams or girders of the first floor. Immediately below this floor is placed the clay cylinder. Between the steam and the clay cylinders is a space of about 18 in., through which the prepared clay is thrown into the mouth of the clay cylinder by boys. Attached to the piston of the steam cylinder is a metal disc, termed a plunger, which works through into the clay cylinder and forces the clay down until it forms a pipe. At the underside of the clay cylinder an apparatus is fixed for shaping the pipe. This consists firstly of a cone or core, which is attached to the end of a strong rod passing down the centre of the cylinder. These cores are the exact size of the internal diameter of the pipe to be manufactured. This, you see, determines the inside size; and, secondly, a large square cast-iron plate, with a circular piece cut out of the centre, equal in size to the diameter of the outside of the pipe, regulates the thickness of the pipe. This we term the die plate, and it is fitted on to the frame work of the lower and outside portion of the clay cylinder. These die plates correspond in every case with the size of the before-named cores, so that when the core and the die plate are both accurately fitted into the bottom of the clay cylinder, you have an open space through which the clay emerges equal to the section of the pipe to be manufactured.

But before the pipe can be manufactured, the socket of the pipe has to be formed, and small though the socket may be in proportion to the pipe, it is much more difficult to manufacture, and takes a much higher power to press than the pipe itself, inasmuch as you have to press the thin wall of clay round a corner, so to speak, and then down the length of the socket. Several moulds are provided, internal and external. The internal mould is a thick ring, in shape the exact reverse of the inside of the socket; this is placed directly under the core previously described, and held there until securely locked. The external mould is made in two halves, and obviously the exact reverse of the internal mould; these are worked in grooves attached to the underside of the die-plate, and are brought together by a lever. The contrivance holds all the mould, internal and external, together.

When the socket moulds are in position, steam is applied by a lever, and the clay is forced down the clay cylinder through the space between the solid core and the circular edge of the die-plate right into the socket mould. When this socket mould is filled, the two halves forming the external mould are released. The internal mould remains. Steam is applied again, and the pipe is delivered to its required length, then cut off with fine wire. There is no joint whatever between the socket and the body of the pipe, the supply of clay being continuous; it is then carried away by the men to the flats to be dressed, dried, and made ready for burning. Every size of pipe requires its own size of cone, die-plate, and socket moulds.

Out of the pipe machines such as I have described, any sized pipe, 2 in. to 24 in. in diameter, can be made—some fifteen or sixteen different sizes. Special machines are constructed to make pipes up to 36 in. in diameter. Pipe machines are largely constructed in Leeds. When the pipes are what we term 'white,' or 'bone dry,' they are set in the kiln. We have found the best kind of kiln for burning pipes to be the circular kiln. These have fires all around them, so that there is every chance of the whole kiln getting equal heat. The pipes are protected from the flash of the fire by an internal wall running up 1 ft. or 2 ft. above the fire. The top of the wall all round the kiln is utilised for setting goods on to be burned, excepting the portion directly in front of the fire.

These kilns are known as down-draught kilns. The heat ascends to the top of the kiln, but as there is no outlet there, it is drawn by the draught of the chimney down through the pipes and through the bottom of the kiln (the arrangement of which is known as a riddle bottom) to a central well, and thence through underground flues to the chimney.

When the kiln is as full as possible the door gap is built up, the fires are lighted, and the heat got up very slowly. In the course of three or four days the kiln comes to its full heat, which is so intense that, looking into it at this stage, you can see every part of the kiln with startling clearness.

And now comes one of the most interesting events of all the process of the manufacture of a pipe, that is, the imparting to it of the brown gloss or glaze with which you are all so familiar in a sanitary pipe. This is done by throwing into the kiln, at almost its greatest stage of heat, a few barrowfuls of common salt. The temperature of the kiln is so high at the "burning off" that the volatile salt is at once converted into vapour, which completely surrounds all the exposed surface of pipes, &c., in the kiln, and there is consequently a reaction of the vapour on the silica of the clay bodies. The agent which promotes the action of the silica and common salt is the aqueous vapour which is always present in the flames of the furnace. The oxygen of the water produces soda with the sodium of the common salt, while the hydrogen combines with the chlorine, and is evolved as hydrochloric acid. The soda then enters into combination with the silica and forms the glaze. This may be termed a coat of soda glass, or in other words, the salt, subject to the great heat, instantly vapourises and covers every particle

of exposed surface. The first application puts on to the articles in the kiln a preparatory coat of glaze, and successive charges at different periods add to the thickness and lustre of the gloss, until sometimes we get what is almost equal to a coat of glass. After the last application of salt the kiln is finished, as far as the burning is concerned. All air inlets are closed up, and the kiln is allowed to cool down very carefully. Some idea of the time occupied in this process may be of interest to you, so I will give you a fair average of same :—

Time of drying on flat .....2 days.
Time from lighting the kiln to setting it off full fire.....2 days.
(*Termed soakings.*)
Time under full fire .....1 day.
Time for cooling .....2 days.

Total.....7 days.

This average applies more particularly to our own case ; other manufacturers generally require more time, according to the nature of the clay. Before leaving the manufacture of pipes let me say that they are made in two different thicknesses, viz., one-tenth and one-twelfth of the internal diameter, the former to meet the requirements of certain engineers, who regularly specify them, and the latter for general use, where not otherwise specified. Bends are made from the pipe machine. Junctions are formed by sticking the size of junction required on to the pipe. Very quick bends, traps, interceptors, and specialities, are made from plaster moulds.

We will next speak of the manufacture of glazed bricks. The clay for these is prepared as previously described, then delivered to a moulder, who moulds them from a brass mould in the usual way ; as soon as they are sufficiently stiffened they are pressed in a hand or steam press, laid on the flats to dry, and when quite dry are put into the kilns and burnt to what is known as biscuit heat, or only a moderate degree of hardness ; they are then brought out of the kilns again to be prepared, dipped with body and glaze, and made ready for the final burning. As very few have any idea of the number of times these bricks have to be handled before they finally emerge from the kiln, fit and ready for sale, I will describe the method fully. Up to this time each brick has been handled in the process thus described about ten times, and they have, in the following, to be handled a further ten times, so you have for a total, say, twenty times for each brick to pass through a workman's hands.

The bricks are now sorted, brushed clear of all dust, and put on to a long board in patches of four or five in close contact ; a boy dips a brush in water and rubs over the face or other portion to be afterwards glazed ; another boy follows with a brush dipped in a certain preparation termed "tint," and brushes the bricks to fill up the pores and form a groundwork for the next process, which is the dipping of the brick in the first tint (a mixture of ball clay, &c.), of the consistency of something like cream ; this is of a very tenacious and adhesive character, and completes the groundwork. It is then dipped in a mixture of about the same consistency named "body," which determines the colour of the brick ; this largely consists of china clay, which gives a dead white colour.

The brick now receives its final dip in the glaze itself (a preparation of felspar, Cornish stone, &c.). But with these repeated brushings and dips there is a superfluous substance on both sides and ends of the bricks that has to be removed, or otherwise the bricks would stick together in burning, or if they did not you would have an edge that would be highly objectionable. This has to be cut patiently off every brick before it can be set in the kiln ; this being done, the kiln is filled and burnt again. It takes about five or six days to burn the kiln off, and then a further week to cool it down. Quick cooling is apt to cause crazing. The whole process of glazed brick making requires the utmost care ; the proportions of the different minerals of each of the three preparations forming the tint, the body, and the glaze, have to be most accurately weighed out ; a mistake in any one of these would be serious. The raw materials forming these are put into tanks containing water to steep; then the whole mixture has to be sieved and resieved through gradually finer sieves until a very fine liquid is obtained. Further, the consistency of this has to be regulated by weight, viz. : 27, 28, 29, or 30 oz. to a pint. One of these weights will be fixed according to circumstances ; half an ounce heavier or lighter will have a disastrous effect. Take the case of the glaze : if it is the slightest degree, or say ½ oz. heavier than the fixed weight, the bricks may come out crazed. If it is ½ oz. lighter, there will be little or no glaze on the brick. To get coloured glazed bricks, we use prepared stains to produce the required colour. Some of these are applied to the body as in blue glazed bricks ; some are applied to the glaze, as in chocolate or brown bricks.

Cane and white glazed kitchen and scullery sinks are made from moulds. After they are out of the moulds they are squared and dressed up, and when they are required to be made white the body determining this is brushed on with specially made brushes. It will take five or six coats of this white body to cover the clay perfectly, and give the necessary tone of whiteness, but you cannot apply more than two coats per day. The sinks must be made quite dry, or as we term it, "bone dry," before the glaze can be applied. There are two systems in the trade for glazing sinks. One system is by twice firing, or biscuiting, then glazing as in the case of the bricks ; in this case the glaze is thrown on to the sink in its biscuit stage, and then reburnt and glazed, or in some works the glaze is applied by immersing the sink in the glaze and then burning it. The other method is by one burning only. We adopt this latter system. In this case the glaze is brushed on in a similar way to the body. Every particle of moisture has to be expelled before putting the sink into the kilns. Each system has its own advantage and its drawbacks, and you have to be guided by local circumstances as to which to adopt.

In the matter of kilns, sink kilns are quite different from the well-known Newcastle, or the round kiln ; they are termed muffled kilns, and are constructed so that no flame may reach the contents. The heat goes all round the kiln between the outer and inner arches, and gradually but effectually penetrates through the walls and floor of the inner arch. The utmost care has to be exercised in the burning of these kilns, first of all to apply the heat very gradually, and then to determine the exact moment when it is burnt sufficiently.

Just as we are assured 'there is a tide in the affairs of men, which, taken at the flood, leads on to fortune,' so there is a moment in the burning of sinks, which, if seized, crowns the effort with success ; or missed, ends in partial, or complete, failure. To enable us to attain this much desired end, small trial pieces are inserted in the kiln with the sinks, and drawn out from time to time until the crucial moment arrives, when it is declared to be finished. The kiln has then to be cooled down most carefully, which takes about six or seven days.

Channel pipes and bends, for which a great demand has arisen in late years, are made out of plaster moulds ; the number of moulds required is enormous. The body and the glaze, in the case of these articles, can be run on ; they are dried and burnt with the sinks. Fireclay water-closets are made in plaster moulds, accurately fitted together, the body and glaze applied as in the case of sinks and bends ; they are also burnt in a similar manner to sinks. Majolica glazed bricks differ from ordinary glazed bricks in their manufacture in one or two particulars :—1st. The body beneath the glaze is for the purpose of obtaining a fine surface, not so much for determining colour. 2nd. The glaze is very soft, and runs at a much less heat. 3rd. There is no waste to be cut off the edges of the bricks ; it overlaps without interfering with the utility of the brick. 4th. Each brick has to be set face up and burnt independently of the other, and also in a muffled kiln."

COMPETITIONS.

GOVAN TOWN HALL. — At a meeting of Govan Commissioners, held on the 14th ult., it was decided to award the first places to the plans marked respectively G, E, and O of those submitted in response to the Commissioners' invitation for competitive plans for the erection of the proposed Burgh Hall. The premiums offered were 100*l*., 50*l*., and 25*l*., and all three have gone to Glasgow architects. Messrs. J. Thomson & Sandilands, 241, West George-street, take first place with G plan, Messrs. Thomas Dykes & Robertson, 65, West Regent-street, second place with E plan, and Mr. W. H. Howie, 134, West Regent-street, third place with O plan. The estimated cost of the building according to the plan adopted is 25,000*l*.

CONSERVATIVE CLUB, NUNEATON, WARWICKSHIRE.—The successful architect in this competition is Mr. C. W. Smith, Market-place, Grantham.

Correspondence.

To the Editor of THE BUILDER.

THE R.I.B.A. ELECTIONS.

SIR,—As the truth of the statement that a large proportion of the members do not vote at the annual elections for the Council has been questioned, the following are the actual figures from the Institute *Journal* in reference to the last election :—

There were only 468 envelopes containing the voting papers, and twenty-nine of these were spoiled by informalities. No candidate obtained more than 391 votes, although the total number of members with voting powers was then 1,581 ; therefore, no less than 1,113 neglected or refused to send in voting papers.

It is to be hoped that there will be more voters this year, and that they will consider that six new members of the Council, with twelve existing members, is a fair proportion.

The best way to secure this result would obviously be to "plump" for new candidates only, for it is absolutely certain that twelve at least of the old ones will be returned.

"AN ARCHITECT FROM YORK."

April 28, 1897.

SIR,—The fact that sixty existing members (out of sixty-four) have nominated themselves for the Standing Committees should be widely known. The best thing to be done under the circumstances will be to "plump" for new candidates, as in any case a large proportion of existing members must necessarily be returned.

As seventeen of the existing Council are renominated for eighteen seats, it is desirable that all members vote, and for new men only. The existing seventeen members will, no doubt, be well looked after by their own friends, and, as they have renominated themselves, will, probably, also vote for each other ; but a few of them should make place for new blood. A LONDON ASSOCIATE.

MORLEY BATHS COMPETITION.

SIR,—I should be greatly obliged if you could (through the influence of your paper) get to know the result of the Morley Baths Competition. The designs were sent in before the end of January ; a deposit of 10s. was made for conditions, which was to have been returned on receipt of bonâ-fidedesigns It is now virtually the end of April, three months have gone, and not a word have we heard except through a traveller of a Leeds fireclay firm, who was at my office in February, and confidently stated that Messrs. Holtom & Fox, of Dewsbury, were the winners. The following week this was published in your paper, and a week or so later it was stated that another design was proposed, as the design of Messrs. Holtom & Fox had not come out according to estimate. (Here note that the conditions gave *no amount*, or even any suggestion of the sum to be spent.) This brings me to about the third week in February, since when we have been in total darkness as to the scheme.

In your issue of January 2, an architect writes you enclosing copy of correspondence which passed between himself and the Borough Surveyor of Morley, which, he considered, threw a doubt upon the fairness of this competition. Under any circumstances, I think, it is quite time the result was known, and plans and deposits returned to the unsuccessful competitors. A COMPETITOR.

The Student's Column.

SPECIFICATIONS.—XVIII.

PLUMBER.

IT is usual to keep separate the external and internal plumbing, and to commence with the specification of the external work.

Materials.—The whole of the sheet lead to be the best new pig lead, properly milled and free from all defects, to be weighed whenever required at the contractor's expense, and to weigh the specified weight. The contractor is to supply all necessary solder, wall hooks, copper nails, &c., required in laying lead work. Solder is not to be used in fixing external lead work save where absolutely necessary, but lead clips of not less than 6 lbs. lead are to be used ; and for securing edges turned into joints of brickwork, as in aprons and flashings, lead wedges are to be used, and joints are to be pointed in cement. The zinc to be Vieille Montagne zinc, and it is to be supplied and laid by Braby's, of Euston-road, London, with holding-down clips, improved solid stopped ends and ridge plates. No soldering or other rigid fastening is to be externally used. (If the

architect has reason to believe that the contractor will employ a competent zinc layer, not a plumber, it may not be necessary to stipulate that the work shall be done by Braby's. But it is very important that zinc should not be laid with rigid fastenings, so as to be perfectly free to expand and contract. Neither copper nor iron nailing must, of course, be used for zinc work.)

Lead in Flats and Gutters.—Lay the flat over with 7 lb. lead, laid to a fall of 1½ in. in 10 ft. with 2½ in. rolls, 3 ft. apart, centre to centre, and cross-rebated drips 10 ft. apart, as shown on plan. The drips in all cases to be 2½ in. deep, and the ends of rolls to be properly bossed. The gutters to main roof to be laid with 7 lb. lead, 9 in. wide in narrowest part, and turned up 9 in. under slating, and dressed over tilting fillet. The cesspools to be of 7 lb. lead, 8 in. by 8 in., inside dimensions, and 6 in. deep, with a 3 ft. length of 3½ in. bent drawn lead pipe of the substance of 7 lb. lead, with tafted end soldered to bed of cesspool, which is to be dressed into dished and rebated perforation. These bent lead pipes are to discharge into heads of rain-water pipes.

Lead Valleys.—The valleys of main roof to be laid with 6 lb. lead, 18 in. wide, dressed under slates, and over tilting fillet; the joints in same to be lapped and welted.

Flashings.—Where lead roof abuts against brickwork the lead is to be turned up 5 in., and cover flashings 6 in. wide of 5 lb. lead are to be fixed, turned into joints of brickwork 1½ in. Where the sloping edges of roofs abut against vertical sides of dormer, put lead secret gutter 16 in. wide of 5 lb. lead, covered with 5 lb. lead flashing, 6 in. wide, with 4 in. laps. This flashing to be close copper nailed to boarded sides of dormer cheeks.

Cheeks of Dormers.—The dormers on roof to have their cheeks covered with 6 lb. lead, secured to boarding with close copper nailing at top, and soldered dots and screws, No. 3, to each cheek.

Chimney Gutters.—The gutter at back of chimneys to be of a minimum width of 6 in., laid with 6 lb. lead, turned up 5 in. against brickwork, and with cover flashings of 5 lb. lead, 6 in. wide, fixed in a similar manner to those before described.

Aprons.—Put aprons, 12 in. wide, of 5 lb. lead, to all chimneys and dormers.

Soakers.—Put soakers or secret gutter to hips as already described under "slater."

Skylight.—Specify the lead work round the skylight in a similar manner to that already given for chimney stacks; that is, lead gutter on top, apron at bottom, and soakers or secret gutter at side, either with or without flashings.

Lead Sills.—Cover the sills of with 5 lb. lead, properly dressed round same, copper nailed at top edge, and with bossed ends to projections.

Pommels of Hips.—Cover the pommels of hips with 6 lb. lead, beaten up, bossed, and fitted to wooden hip knob on roof in accordance with detail.

Lead Rain-water Pipes.—The rain-water pipes to be 3½ in. drawn lead pipes, weighing 13 lbs. per foot run, and each to have ornamental lead ears and tacks purposely made in accordance with detail. The heads to be of 7 lb. lead, bossed, beaten up, and cut in accordance with detail, and each to have No. 2 pieces of strong ¾ in. lead pipe as stiffeners across top, to take long coach screws for fixing. The coach screws to have hexagonal heads, and to be covered with ornamental lead bosses, as shown on detail, soldered on.

Lead Eaves Gutters.—Dress the eaves gutters in stone cornice of main roof with 7 lb. lead laid to fall of 1 in. in 10 ft., the joints to be lapped and welded, lead to be dressed over stone cornice projecting ½ in. beyond top member, slightly turned up, secured to stone work, with lead plugs and screws and soldered dots 3 ft. apart, and taken up 9 in. under slating. The cesspools to be formed as already described for lead gutters.

Zinc Flats.—Flat over to be covered with No. 15 gauge Vieille Montagne zinc, laid to a fall of 1½ in. in 10 ft., with capped rolls 2 ft. 10½ in. from centre to centre. Drips to be 2½ in. deep cross rebated and 7 ft. apart.

Zinc Gutters.—Lay the gutters to with No. 15 gauge Vieille Montagne zinc of a minimum width of 9 in., laid to a fall of 1½ in. in 10 ft., turned up under slates 9 in. on each side, secured with holding down clips. Drips to be 2½ in. deep cross rebated and 7 ft. apart. The cesspools to be in 5 lb. lead, 8 in. by. 8 in. inside dimensions, and 6 in. deep, with a 3 ft. length of 3½ in. bent pipe of 6 lb. lead to discharge into head of water pipe.

Zinc Eaves Gutters.—These are by no means to be recommended, but if used should be specified thus: Eaves gutters to be O.G. moulded 4 in. eaves gutters of No. 15 gauge Vieille Montagne zinc with stiffening tubes 3 ft. apart, and fixed to fascia with large-headed zinc nails.

Internal Plumber.

Lead Pipes.—The pipes to be of the following weights per yard run :—

Wastes:—1	in.	7½ lbs.
1½	in.	15 lbs.
2	in.	18 lbs.
2½	in.	24 lbs.
The services and supplies :—		
½	in.	6 lbs.
¾	in.	9 lbs.
1	in.	12 lbs.
1¼	in.	16 lbs.
1½	in.	24 lbs.

Taps.—All the taps to be best quality brass, or gun-metal taps, and unless otherwise described, the bib and stop-cocks to be "full-way" high-pressure screw down valves. The ball valves to be of the make known as "equilibrium." All bib-taps to have screw ferules, and all stop-cocks screw unions, so that the taps may be removed for repairs without breaking the joints in the pipes.

Tin-lined Pipes. — The whole of the pipes used for cold water supply to be wrought-iron, block tin-lined pipes known as Walker's Patent Health Water Pipe, to be obtained of and to be put together in accordance with the instructions of the patentee; (or) the whole of the pipes used for cold water supply to be block tin-lined lead pipe, the joints of which are to be formed with gun-metal linings and screwed sockets, the pipe ends being tafted to linings.

Joints.—All joints in lead pipes are to be wiped soldered joints, and no blow pipe or bit joints are to be used.

Pipe Fixing.—All horizontal pipes are to be fixed on 1½ in. by 3 in. wrought and splayed fillets, plugged to wall with hollow groove on top side for pipe to lie in, and each to be laid with a fall towards the rising main, so that pipes may be emptied from draw-off tap at bottom of same.

Vertical pipes are to be fixed by face tacks, and not by pipe clips or wall-hooks. Water pipes in roof are to be cased with ¾ in. deal casing, 6 in. by 6 in. clear inside, packed with slag wool. (Or they may be encased with felt or other good non-conductor, so as to preserve them from frost as far as possible.)

OBITUARY.

M. PAUL BLONDEL.—This eminent French architect, a former *pensionnaire* of the French Academy at Rome, and official architect to the Louvre, has just died at the age of fifty. He was a native of Paris, and after studying as a pupil in the atelier of M. Daumet and at the Ecole des Beaux-Arts, he obtained the Prix de Rome in 1876, and sent home a number of fine drawings, among which his restoration of the Temple of Fortune at Prænestè gave him at once a reputation. The "Direction des Bâtiments Civils" found in him a learned, helpful, and energetic official. But he carried out also a number of works in private practice, of which the most important are the Furtado-Heine Dispensary, some large private residences at Mulhouse, a Château near Limoges, the monument to Etienne Dolet at Paris (in collaboration with M. Guilbert, the sculptor) &c. At the Louvre, where he succeeded M. Guillaume, he commenced the work of rearranging the Salle des Etats. Though M. Blondel was known to have been suffering more or less for some time from a local ailment, it was never supposed that his life was in danger, and his comparatively early decease has come as a painful surprise to his friends and the French architectural profession generally.

MR. J. GARDNER.—Mr. J. Gardner, architect, of Cheriton-place, Folkestone, died somewhat suddenly on the 16th ult. Deceased was well known as one of the leading architects in the town, and designed most of the modern ecclesiastical edifices in Folkestone. The funeral took place on the 20th ult. —*Kentish Express.*

GENERAL BUILDING NEWS.

THE JUBILEE PAVILION, ST. PAUL'S CHURCHYARD.—The huge pavilion to be erected for the Diamond Jubilee Celebration by Mr. J. N Maskelyne in St. Paul's Churchyard, on the site now occupied by Messrs. James Spence & Co.'s premises, has been designed by Mr. J. G. Buckle. The pavilion will consist of four tiers, and will seat about two thousand persons. A distinguishing feature will be the substitution of inclined approaches to the tiers in lieu of the usual steps. The pavilion has also been designed so as to permit of the several parts being prepared and brought upon the site ready for fixing. There will be ladies' retiring rooms at each tier level, and refreshment saloon, lounge, smoking-room, and lavatories in the basement. The cost, including decorations, will be about 4,000*l.*

TOWN HALL, ROTHERHITHE.—The new Town Hall at Rotherhithe was opened on the 28th ult. The architects of the building were Messrs. J. Murray and F. Foster, whose designs were selected in competition. The building, which is in the Renaissance style, has a frontage of 53 ft. to Lower-road, a return frontage of 161 ft. to Neptune-street, and a frontage of 54 ft. to Moodkee-street. It contains, besides the usual offices and a Coroner's Court, a Council Chamber and a public hall, with sitting accommodation for 900 persons. The building has been wired by the Brush Electrical Engineering Co., for the purpose of lighting it by electricity at a future date, and the combination gas and electric fittings have been supplied by Messrs Charles Smith, Sons, & Co., Limited, as have also the locks and ironmongery throughout. The heating is by hot water on the low pressure system by means of a Gurney boiler, carried out by Messrs. Palowkar & Sons; and the fire hydrants and fire extinguishing apparatus have been provided by Messrs. Ham, Baker, & Co. The ventilators have been supplied by Messrs. Kite & Co.; the speaking tubes by the Homacoustic Tube Co.; and the chimneypieces by Messrs. Shuffery & Co. Mr. John Carter has officiated as clerk of works, and Mr. Diprose as general foreman. The whole contract for the works has been carried out by Mr. Howell J. Williams. The furniture has been supplied from the designs of the architects by Messrs. Atkinson & Co. An illustration of the building and a short description appeared in our issue for March 16, 1895.

BOARD SCHOOL, GLASGOW.—On the 23rd ult. Rosemount Public School, Millburn-street, Garngad Hill, Glasgow, was opened by Sir John Neilson Cuthbertson. The school is erected on a site at the highest point of Garngad Hill. The site has a considerable fall from front to back. The drill-hall, janitor's house, and heating and ventilating apparatus have been placed on the lower level facing eastwards. The school and class-rooms, sixteen in number, and varying in size from accommodation for 173 to sixty-two scholars, are grouped round the central hall on two floors, and provide places for fully 1,203 children. The walls are of red sandstone from Ballochmyle quarries, finished in squared rubble with polished dressings. The play-grounds are laid with tar-macadam paving. The total cost, exclusive of site, is expected to come within 13,000*l.* Mr. J. B. Wilson, of Glasgow, was the architect.

CATHOLIC CHURCH, BIRKDALE. — The Roman Catholic Bishop of Liverpool (the Right Rev. Dr Whiteside) laid the foundation stone of the new church of St. Teresa, Birkdale, on the 25th ult. The building will be Gothic in design, the architects being Messrs. Sinnott, Sinnott, & Powell, and the contractors Messrs. Fairbridge & Hatch, of Birkdale.

ALTERATIONS, DUNBAR PARISH CHURCH.—The alterations at Dunbar Parish Church have been accomplished. The whole of the interior has been removed, and the large area has been sub-divided into nave and aisles by means of an arcade of five arches and pillars on each side. A semi-octagonal apse has been thrown out at the east end, opening into the nave with a large chancel arch, and having a minister's vestry on one side and an organ chamber on the other. Two of the apse windows contain stained glass. The nave ceiling has been opened out and raised. The tracery front of the old gallery has been worked into the front of the end gallery, and the steps of the old stairs have been used again in the staircases. The Dunbar monument now stands on the floor level of the church, against the east wall of the north aisle, completely restored. The work has been carried out from the designs, and under the supervision, of Messrs. W. & J. Hay, architects, of Liverpool, by Messrs. Robert Hall & Co., of Galashiels, and by local tradesmen.—*Glasgow Herald.*

PUBLIC HALL, KIDSGROVE. — The foundation-stones of the new Victoria Hall and Public Offices, about to be erected by the Urban District Council, were laid on the 22nd ult. It is proposed to erect buildings for the accommodation of the Council, and a hall for public meetings, &c., a fire station, and a town yard. Messrs. Wood & Hutchings, of Tunstall, are the architects; and the tender of Mr. Charles Cope, of Tunstall, for 2,046*l.*, has been accepted.

HALL, ORMOND QUAY PRESBYTERIAN CHURCH, DUBLIN.—A new hall has just been opened in connexion with this building. It has been erected from the designs and under the superintendence of Mr. W. M. Mitchell, architect, the contractor being Mr. John Good.

SCHOOLS, LLANRWST, NORTH WALES.—A new County Intermediate School for girls is to be built, and additions made to the boys' school at Llanrwst, North Wales, from the plans and under the superintendence of Mr. H. Teather, of Cardiff.

CHILDREN'S HOME, FORMBY, LANCASHIRE.—A children's home has just been opened at Formby for the Church of England Incorporated Society for Waifs and Strays. The building, a brick structure, is situated in Andrew's-lane. On the ground floor there is a recreation-room 33 ft. by 16 ft., and dining

room 24 ft. by 16 ft., also matron's room, kitchen, scullery, pantry, laundry, washhouse, and the usual outbuildings. Upstairs there is a dormitory containing eighteen beds, a smaller one containing twelve beds, and a ward for sick children containing four beds; also matron's and servants' bedrooms. There is one bathroom and lavatories on the ground floor for boys and on the bedroom floor for girls, and the latrines are outside in a covered yard. The building was designed by and the contract carried out under the personal superintendence of Mr. J. H. Havelock Sutton, of Liverpool and Formby, and the work was executed by Messrs. J. & G. Chappell, builders, of Walton.

WESLEYAN CHAPEL, IRTHLINGBOROUGH. — On Good Friday the new Wesleyan Methodist Chapel, which has just been erected at Irthlingborough, was opened for public worship. The new building has been built from plans by Mr. John Wills, and the contractors were Messrs. E. Brown & Son, of Wellingborough. The heating work, &c., has been executed by Mr. Marriott, of Higham Ferrers.

NEW GOVERNMENT OFFICES, DERBY.—The new Government offices, which have been erected at Derby for the accommodation of the County Court and Inland Revenue officials, were recently opened. The elevation of the building is in brick and terra-cotta. Ascending the steps from St. Peter's Churchyard, the visitor to the new premises enters a corridor extending the full length of the building. On his right are the registrar's and clerks' offices, and on the left the Inland Revenue offices, with a private room for the collector. Beyond are solicitors' rooms, stores, and jury rooms. A semi-circular stone staircase leads to the upper floor, on which will be found a registrar's court, measuring 48 ft. by 30 ft., and a smaller judge's court. The registrar has also a private office adjoining the bankruptcy department. Overlooking the street are private rooms for the Supervisor of Inland Revenue and Surveyor of Taxes. In the basement are caretaker's quarters, bailiff's room, County Court, and revenue stores. The general office of the County Court is large enough for a numerous staff. In both courts ample provision is made for solicitors. The judge has a private apartment connected with the Bench. The building is illuminated by electricity, and is heated on the low pressure hot-water system. The boiler is situated in the basement. This work has been done by Messrs. J. C. & J. S. Ellis, Limited, of Sheffield. The premises have been erected by Mr. Wm. Eaton, of Derby. The architect was Mr. Tanner, of H.M. Office of Works.

WELSH BAPTIST CHAPEL, CARDIFF.—The tender of Mr. Jonathan Lewis, Cadoxton, has been accepted for the erection of the new Salem Welsh Baptist Chapel, Barry Docks. Mr. E. Jenkin Williams, Cardiff, is the architect.

WESLEYAN CHAPEL, ASHOPTON, DERBYSHIRE.—On the 22nd ult. a new Wesleyan chapel and school was opened at Ashopton. The work has been carried out by Messrs. Alfred & Hedley Hill, of Tideswell and Litton, and the architect was Mr. Herbert W. Lockwood, of Sheffield.

RESTORATION OF LESLIE PARISH CHURCH, ABERDEEN.—This church was reopened recently, after undergoing alterations. The plans for the restoration were prepared by Mr. Marshall Mackenzie, Aberdeen, and the work was carried out under his personal supervision. The style of the reconstruction and decoration is Italian Renaissance, in keeping with the original building. The whole of the seating has been renewed and re-arranged. The entrance to the church is now from the west end, instead of from the east end, as formerly. A vestry has been formed at the entrance. The pulpit has been placed on a raised platform at the east end, and on this platform is also a Communion table. All the woodwork is of pitch pine.

THEATRE, SWINDON.—A new theatre is to be built at Swindon. It is to be erected at New Swindon, from designs prepared by Messrs. R. Milverton Drake & J. M. Pizey, architects, of Bristol. The theatre will accommodate about 1,600 persons. Three sides of the theatre abut on public streets. Externally the building will be of brick and freestone. It is to be called the Queen's Theatre, and will be opened about the beginning of October.

GROVE HALL, WANSTEAD, ESSEX.—The new building known as Grove Hall, Wanstead, was opened recently. The building has cost upwards of 2,500*l.*, and it will seat over 500 people. The architect was Mr. E. N. Whitaker, and the builder Mr. J. Jolliffe.

METHODIST FREE CHURCH, BELLINGHAM, NORTHUMBERLAND. — The opening of the new Methodist Free Church and School, Bellingham, took place on the 16th ult. The buildings are of stone, in the Gothic style. The block of buildings includes a chapel to seat 400 persons, a schoolroom, two vestries, lavatory, &c., heating chamber, and storage room. The ventilation of the chapel has been carried out by Messrs. Stott & Co., of Oldham. The schoolroom and chapel are heated throughout by hot water-pipes. The contractors for the work are :—Masons, Mr. Isaac Welton, of Birtley; joiners, Mr. James Aynsley, of Bellingham; slater, Mr. J. Hewitson, Newcastle-on-Tyne; plasterer, Mr. A. Charlton, of Birtley; painter and glazier, Messrs. Forbes & Son, of Birtley; plumber, Mr. W. M. Smith, of Hexham; and heating, Mr. R. Vaux, of Sunderland. The plans were supplied by Mr. W. Welton, of Humshaugh.

PRIMITIVE METHODIST CHURCH, NEWCASTLE.—The foundation-stones of a Primitive Methodist Church for the west end of Newcastle were recently laid. In 1887 a site was secured in Kingsley-terrace, Arthur's Hill, and it is upon this that the new church is now being erected from the designs, selected in a limited competition, of Messrs. Marshall & Dick, architects, Newcastle. The hall in connexion with the church is placed below the building, and is not sunk into the ground as a basement, and the school is entered from the street level on the Normanton-terrace side. The main entrance to the church is from the north end, at the junction of Kingsley-terrace and Normanton-terrace, and is approached by a flight of stone steps, which give access to a vestibule, communicating with the tower stairs and entrance, which is at the north-west corner. The church consists of nave and transepts, containing the bulk of the sittings on the ground floor, a small gallery, only accommodating about ninety, occupying the north end over the entrance vestibule, &c. The total accommodation is for about 500. The windows to the church are long trefoil-headed lights, those in the main gable being grouped in pairs within a hooded arch. An organ chamber is provided, with arched opening facing into the west transept, where the choir is also to be situated. In the rear, on the church level, are arranged the church parlour, the minister's vestry, and the stewards' room, whilst a staircase communicates with a side entrance in Kingsley-terrace and with the hall and other rooms below. The stone used is from the Kenton and Windy Nook quarries, the exterior being rock-faced with chiselled quoins and dressings. The seating of the church is to be of Oregon pine, stained and varnished; and the floors of hall, &c., of wood blocks on concrete. The heating is to be by low-pressure hot-water. The buildings throughout are to be lighted by electric light. Mr. T. Hutchinson, Newcastle, is the contractor for the work.

SCHOOLS, YNYSYBWL, GLAMORGANSHIRE.—The Crebyn Ddu Infant Schools have just been opened. The schools, which cost 1,070*l.*, were built by Mr. Thomas Hughes, Mountain Ash, from plans prepared by Mr. Arthur O. Evans, Pontypridd.

NEW BONDED WAREHOUSE, ABERDEEN.—The Shore Porters' Society have decided to carry out additions to their warehouses in Shore-lane. The new structure will be one of six stories in height. The architect of the warehouse is Mr. R. G. Wilson.

PROPOSED CHURCH, DUBLIN.—It is proposed to erect a new parochial church for Terenure parish, Dublin. Mr. W. H. Byrne has been appointed architect. The building will be in the Romanesque style, with nave, side aisles, and transepts, and its cost without a spire is estimated at about 12,000*l.*

WESLEYAN SUNDAY SCHOOLS, HULL.—On the 21st ult. the new Suuday Schools built in connexion with Queen's-road Wesleyan Chapel, Beverley-road, Hull, were opened. The arrangement of the building is on the central-hall plan, with class-rooms surrounding the same on the ground and first floor. Accommodation in the central-hall is arranged for about 700 scholars. Attached there are an infants' schoolroom, and twelve class-rooms of various sizes, a church parlour, minister's vestry, and the usual kitchen and offices. The cost of the building is about 3,500*l.* The architects are Messrs. Gelder & Kitchen, and the builders Messrs. Colley & Levitt, and Messrs. Hodson & Hebblewhite.

ST. MATTHEW'S PAROCHIAL HALL, BOOTLE.—The memorial stone of St. Matthew's Parochial Hall, Bootle, was laid on the 20th ult. The plans for the new hall were originally designed by the late Mr. Charles Aldridge, and are being carried out under the superintendence of Messrs. Willink & Thicknesse, Liverpool. The contractors are Messrs. G. Woods & Son. That portion of the building at present contracted for will provide a hall capable of accommodating about 400 people. This hall can be divided by folding doors so as to make one part available as a working men's club, and leave the other part available for meetings. There will be a large room for a young men's club, and an apartment for the Young Women's Bible Class. The upper portion, which the committee are not in a position to undertake at present, will provide a large entertainment hall, with a gallery.

ORANGE HALL, BELFAST.—The foundation-stone has just been laid of the West Belfast Orange Hall, situate in the Shankill-road. The frontage is 46 ft. 8 in., next the main road, and extends from front to back along Brookmount-street 105 ft. From the front entrance vestibule a corridor 6 ft. wide extends down the centre, and communicates with side entrance at the rear. The front entrance vestibule contains the staircase to the large hall, and behind, on the left, the lodge and ante-rooms, and on the right are the reading, arch, ante, and box rooms, as well as back staircase, lavatories, hall, kitchen, yard, and, at the further end, a house for the caretaker. A wide stair at front, and another at rear, will give access to the large hall, which is 62 ft. long, including gallery, and 36 ft. wide. In front there will be a gallery about 12 ft. wide, having stewards' room under, moveable platform at end of hall, and ladies' and gentlemen's retiring-rooms at rear. The architect is Mr. William Batt, of Belfast, and the works will be carried out by Messrs. Campbell & Lowry.

SANITARY AND ENGINEERING NEWS.

DRAINAGE OF FALMOUTH.—Mr. Brereton, C.E., in reference to the drainage of Falmouth, recommends an expenditure of about 8,000*l.*, in providing a new and enlarged tank at the Market Strand, further seaward; also filling in the bight behind Market Strand, down to Messrs. Carne's premises, and draining the adjacent houses into the tank instead of the foreshore.

SEWAGE WORKS, RAWMARSH.—On the 23rd ult. Col. J. C. Marsh, an Inspector of the Local Government Board, held a public inquiry in the Council Hall, Rawmarsh, relative to an application by the Rawmarsh Urban District Council for sanction to borrow 4,500*l.* for purposes of sewage disposal works. Mr. J. Platts is engineer of the sewage works.

WATER SUPPLY, MELROSE.—The opening ceremony in connexion with the supplementary water supply to the burgh of Melrose was performed on the 20th ult. by the Duke of Buccleuch. After consideration of the engineer's reports, the Commissioners decided upon the springs of Allanshaws and Lauder Common, which will yield from 90,000 to 150,000 gallons per day. The water is conveyed in fireclay pipes to regulating chambers. There are three of these regulating chambers on Allanshaws, connected by 5-in. cast-iron pipes. The water from the lower regulating chamber is conveyed to a service reservoir south of Melrose in a cast-iron main, consisting of 5-in., 6-in., and 7-in. diameter cast-iron pipes. Owing to the height of the source above Melrose, it was found necessary to break the pressure, and this is done by a break pressure chamber. In order to supply the asylum with water the service reservoir has been constructed on a site acquired by the Commissioners from the Duke of Buccleuch, adjoining the public road to the south of the asylum grounds. This service reservoir, the water level of which is below the level of the natural surface of the ground, is constructed of concrete, having a semicircular roof, the whole being covered with soil. It is 100 ft. long by 24 ft. wide, and has a depth of 10 ft. of water, giving a capacity when full of 150,000 gallons. The total length of cast-iron main from Allanshaws to the service reservoir is about ten miles, and the length of fireclay piping on Allanshaws and Lauder Common, conveying the water from the springs to the regulating chambers, is about two miles. The total cost of the scheme will be about 10,000*l.* The engineers are Messrs. Belfrage & Carfrae, Edinburgh, and the following are the contractors for the different contracts: — Laying cast-iron main and distributing pipes and constructing service reservoir, Messrs. John M'Knight & Son, Edinburgh; developing springs and laying fireclay pipes on Allanshaws and Lauder Common, Mr. George Spence, Stow; supplying cast-iron pipes, Messrs. D. Y. Stewart & Co., Glasgow; supplying valves, hydrants, street wells, &c, The Glenfield Company, Limited, Kilmarnock.

STAINED GLASS AND DECORATION.

WINDOW, ORMISTON CHURCH, NEAR EDINBURGH.—A memorial stained-glass window has just been erected in the Parish Church, at Ormiston. The window was executed at the studios of Messrs. A. Ballantine & Gardiner, Edinburgh.

WINDOWS, ST. CUTHBERT'S CHURCH, NEWCASTLE.—On the 17th ult., in St. Cuthbert's Church, Newcastle, two stained-glass windows, placed in the church in remembrance of the late Mr. Arthur B. Gibson, the architect of the church, and his children Rex and Phœbe, by his wife and sisters, were unveiled. Messrs. Morris & Co., have executed the design, which was by Sir Edward Burne-Jones.

WINDOW, HOLY TRINITY CHURCH, RAMSGATE.—In memory of Lady Wills, a stained glass window has been placed in the east end of Holy Trinity Church, Ramsgate. The window is illustrative of the nativity and scenes in the Saviour's early life. The window has been designed and executed by Messrs. Joseph Bell & Sons, of Bristol.

RENOVATION, SHEEPWASH PARISH CHURCH, DEVONSHIRE.—The decoration of the parish church of St. Laurence has now been completed. The work has been designed and executed by Messrs. Fouracre & Son, of Plymouth; the wood carving is by Mr. Herbert Read, of Exeter.

FOREIGN.

FRANCE.—A monument has just been inaugurated at Nantes by the President of the Republic, to the memory of the "Enfants de la Loire Inférieure morts pour la Patrie." This monument is the design of M. Corroyer, and is composed of a four-sided pedestal ornamented with four figures at the angles, representing soldiers of different regiments, executed by MM. Le Bourg and Allouard. It is surmounted by an allegorical group by M. V. Bareau.——To-morrow (Sunday) the monument raised by subscription to the memory of Charlet is to be inaugurated. It is the work of Alexandre Charpentier, sculptor, and is placed in the square of Denfert-Rocherean. ——The Direction des Beaux-Arts has just converted the little chapel of the Gobelins Manufactory into a museum. A set of water-colours and drawings have been placed there, which have been valuable in the execution of the tapestries.——The Municipality of

Montreuil-sous-Bois (near Paris) is proposing to erect a statue to Pierre de Montereau, the celebrated architect of the Middle Ages, who built the Sainte Chapelle at Paris.——The committee on the Victor Hugo monument have decided that the monument, which is the work of M. Ernest Barrias, shall be exhibited at the 1900 Exhibition. It will be placed out of doors in front of one of the Palaces, and it will then be possible to judge of the effect on it of its surroundings. The inauguration will not take place till 1902.——M. Levendeck, architect, has been commissioned to build a church at Chesnay, in the Faubourg de Versailles; the first stone has just been laid; the church is to have a fine stone steeple.——The new Museum of Algerian Antiquities at Mustapha-Supérieur, close to the Governor-General's palace, has just been inaugurated. It is situated in the midst of a beautiful park which is one of the prettiest walks in the environs of Algiers.——In turning up the roadway in the Rue Saint Jacques, between the Sorbonne and the Lycée Louis le Grand, portions of the Roman road have been brought to light which connected Lutèce with Genabum (Orléans), and with the centre of Gaul. —— The first prize in the Chenavard Competition, at the Ecole des Beaux-Arts, has been awarded to M. Sirot, pupil of M. Moyaux, architect; M. Dehaudt, pupil of the same architect, has gained the second prize; and the third has been awarded to M. Hulot, pupil of M. Marcel Lambert.——The death is announced of M. Charles-Olivier de Penne, a well-known and admirable French animal-painter. He was born in 1831, and was a pupil of Léon Cogniet and Charles Jacques, and obtained the second Prix de Rome in 1857, and a silver medal and the Cross of the Legion after the 1889 Exhibition. Among his principal works may be named "Un Cerf forcé," "Chiens Vendéens," "Pendant la Chasse," "Cerf à l'Eau," and "Relais"; the two latter of which are at present to be seen at the Old Salon.

GERMANY.—The *Deutsche Bauzeitung* is publishing some plans of the proposed alterations at the State Hospital at Berlin, to which we referred recently. It appears that the total expenditure will be larger than at first anticipated, amounting to over eleven million marks, or 550,000*l*. Of this sum about 450,000*l*. will be devoted to the hospital proper, whilst the other amounts will be spent on various institutions in connexion with the establishment. ——We notice with considerable interest that a technical contemporary in Germany seems to be seriously taking up the subject of fire-protection, and is illustrating various conflagrations, with plans and sketches.——The Society of German Engineers will hold its thirty-eighth annual meeting at Cassel on June 14 next, when a large number of important papers are to be read.——A number of churches are to be erected at Lichterfelde, near Berlin, and the German Empress is taking particular interest in their erection. —— The thoroughfare at Berlin, known as "Am Kupfergraben," is to have material alterations, together with several other of the thoroughfares on the river front. A considerable expenditure is also to be incurred on several new bridges in connexion with these improvements.—— There is some fear of an impending strike in the building trades at Berlin, during the present summer.—— The Annual Art Exhibition, which is to be opened at Berlin on May 1, will this year have a specially national character, as there are only a few exhibits from other countries.

AUSTRIA.—A new Architectural Society has been formed at Vienna, and will be called "Verein von Baumeister in Niederoesterreich." The first meeting has been held under the presidency of Herr Krones, when a paper was held by Herr Stigler, on the defects in Austrian building operations.——The Royal Technical College at Vienna has received a bequest of 10,000 florins, by the will of the deceased railway engineer, Victor Kuefferle. The sum is to be used for travelling studentships.——Excursions are being regularly undertaken by the students of the Vienna Technical College, under the guidance of their professors, and this year one of the more important for engineers left Vienna on the 15th inst. for the German seaport towns, and for Antwerp. There were sixty students, under the guidance of Privy Councillor Von Hauffe.——A historical little theatre at Vienna, which might be compared with our Sadlers Wells Theatre, will cease to exist after this month. It was known as the Rudolphsheimer Theatre.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. Deards, of Victoria Works, Harlow, Essex, has appointed Mr. T. A. Scott, of 14, Fitzroy-avenue, Belfast, as his sole agent for the North of Ireland for Deards' patent "Self-locking" glazing system

TRADE NEWS. — Messrs. Hayward Bros. & Eckstein have secured the contract for supplying their patent semi-prism and other lights for the New Markets in Sydney (New South Wales), and also the iron staircases for the same building.——The Anaglypta Company (Darwen & London) are making a boldly designed commemoration panel of the Queen's reign, showing the Royal Arms and a medallion portrait of the Queen in the centre.—— The Corporation of Darwen have decided to extend the use of Polarite at their sewage works, and four additional filters are now to be laid with Polarite.

THE CARPENTERS' COMPANY.—In consequence of the death of Alderman Sir William Lawrence, the Carpenters' Company have postponed their forthcoming dinner, and also their projected ball.

APPOINTMENT OF CLERK OF WORKS.—Mr. J. H. Verrell has been appointed clerk of works to supervise the construction of the foundations of Horton Asylum, Epsom, for the London County Council.

THE BUILDERS' CLERKS' BENEVOLENT INSTITUTION.—At the monthly committee meeting of the Builders' Clerks' Benevolent Institution (of which Mr. Thomas Hall, of the firm of Messrs. Hall, Beddall, & Co., the successors to Messrs. Lawrence & Sons, is President at the present time), reference was made to the death of Sir William Lawrence, the first President of the Institution (1866), and the committee decided to instruct their secretary, Mr. H. J. Wheatley, to write to the surviving members of the family, expressing their sincere regret for and deep sympathy with them in the great loss sustained. "To the late Sir William," Mr. Wheatley's letter continued, "this Institution is very deeply indebted indeed, as to his personal encouragement and great influence must be attributed the striking success resulting from the original effort made. Such services were at the time, and continue to be, very highly appreciated."

CONFERENCE OF SLATERS AND TILERS. — The triennial conference of the Amalgamated Society of Slaters and Tilers has just been held in Newcastle. There are 1,100 members in the society, located in thirty-nine towns in England, and one in Ireland. The delegates, who numbered twenty-six, were welcomed to Newcastle by the general secretary, Mr. J. Burn. Mr. Geo. Baker, of York, was appointed Chairman of the conference, with Mr. Timmins, of Liverpool, in the vice-chair.

POPE'S VILLA, TWICKENHAM. — An interesting discovery, says the *Surrey Mirror*, has been made at Pope's Villa, Twickenham, the residence of Mr. H. Labouchere, M.P. The villa, which stands on the river bank, is being altered, and on removing a thick coating of concrete from a stone over one of the entrances a deeply-carved inscription was found. This reads:—"On this spot stood, until 1809, the house of Alexander Pope. The grotto that formed its basement still remains. 1848."

DISCOVERY OF ROMAN REMAINS, WINCHESTER. During the progress of the excavations and operations for new roads, drains, &c., now being carried out in a field on the east side of High-street, under the supervision of Mr. A. Frampton, architect, many evidences, says the *Salisbury Journal*, of Roman or Romano-British Winchester have come to light. There can be no doubt that somewhere in the field are the remains of one or more Roman villas.

THE AMALGAMATED SOCIETY OF CARPENTERS AND JOINERS.—The annual report of this society, just issued, shows that there has been a nett gain of seventeen branches, making a total of 709 at the close of the year. The number of members admitted was 8,635, and, after allowing for deaths and exclusions, a gain appears of 4,476, making the present membership over 50,000. The receipts from those in employment amounted to 126,527*l*. 10s. 10½d., and disbursements to 99,993*l*. 16s. 1d., thereby enabling the society to increase its cash balance from 79,422*l*. 10s. 7d. to 105,956*l*. 5s. 4½d., the largest amount accumulated during any year of the society's history.

A STATUE OF DARWIN FOR SHREWSBURY.—Messrs. Henderson & Webster, Aberdeen, are progressing with the manufacture of a pedestal in polished emerald pearl granite for a statue of the late Charles Darwin. The statue is to be placed in the open space in front of the Free Library in the town of Shrewsbury, where Darwin was born, and of the famous Grammar School of which he was an alumnus. The granite pedestal is 4 ft. 6 in. high, and will stand on two steps, probably of Aberdeen granite. The statue itself will represent Darwin in a sitting posture, and will be of bronze, 6 ft. 6 in. high, so that the total height from the ground level will be 12 ft. The sculptor is Mr. Horace Montford, London. The base of the pedestal is 4 ft. 8 in. in width, and in front, both of the base and die, is a semi-circular projection. The extreme length of the die is 6 ft. 3 in. It is formed out of a single block, 6 tons in weight.—*Aberdeen Journal.*

CAPITAL AND LABOUR.

BUILDING TRADE DISPUTE, LEEK.—A meeting o employers and workmen has just been held at the "Swan" Hotel. Messrs. J. Mathews, J. Heath, and T. Grace, with Mr. Bowden, Burslem and district secretary, represented the masters. Notices had been given by the bricklayers for a rise of a halfpenny per hour, and for the apprentice rule to read "One apprentice to five journeymen," instead of one to three, as now. The masters had given notice for a reduction of a halfpenny per hour, and for notices of alterations to be given on January 1 instead of February 14, and to take effect on May 1 instead of May 14. After considerable discussion it was arranged that the masters should give a farthing per hour rise, the men agreeing to the rule as to notices being altered to January 1, and the rule as to apprentices to remain as now, the above arrangements to be for three years.

WAGES IN THE BUILDING TRADE AT PORTSMOUTH —The Council of the Master Builders' Association had before them, at a special meeting recently, an application from the carpenters in the borough for an increase in their wages of a halfpenny per hour. Last summer there was a long strike of carpenters and painters, but eventually they returned to work on the old terms, the carpenters intimating they should again press their claims in the spring. Their notice expired on the 1st inst. (to-day). It appears that all the master builders in the borough have been consulted on the question, and they are unanimously of opinion, it is stated, that the increase of a halfpenny an hour should not be given.

THE BUILDING TRADES, STAFFORDSHIRE.—The building trade shows further signs of improvement, and all classes of operatives are working well, full time being general. Bricklayers have no members out of employment, and joiners are working overtime at a number of jobs. There is a general demand for joiners not only in the Potteries, but in most of the surrounding towns. Plumbers and painters are very busy. Bricklayers' labourers are much better employed, there being less out of work than has been the case for months past. At Leek all branches of the trade are busy, particularly joiners and bricklayers. At Stafford trade is moderate, with no operatives out of employment. At Crewe all departments are working well.

STRIKE IN THE BIRMINGHAM BRICK TRADE.—A general strike has taken place among the brickmakers of Birmingham, and between 400 and 500 men are out. The local building trade is at present exceptionally brisk, and if the strike is persevered with much inconvenience will certainly be felt. The point of difference seems very small, viz., whether an advance of ½d. per hour should take effect at once or a week hence, but a great deal of bitter feeling has been raised between the parties. Negotiations have been going on for some time past for a readjustment of the prices, and from the information we have received, it seems that the men broke off the negotiations when there was a prospect of an amicable settlement being arrived at by their leaders. The men appear to have become impatient at what they considered the unwarranted delay in coming to terms.—*Liverpool Courier.*

NEWPORT CARPENTERS AND JOINERS. — The Newport members of the Amalgamated Society of Carpenters and Joiners having failed to obtain from the master builders of the town a schedule of concessions, including the shortening of working hours on Saturdays, percentage on all overtime after full day's work, prompt payment of wages, better provision for keeping tools in order, and the determination of holidays by a board consisting of an equal number of employers and workmen, have passed the following resolution:—"That on and after the first Saturday in May, 1897, it is the opinion of this meeting that a strike is undesirable, but that our members refrain from working after five p.m. on weekdays and one p.m. on Saturdays—under a penalty, for the first offence, of 10s.; second offence, 1*l*.; third offence, 2*l*., or expelled the Society—until such time as the Newport Master Builders' Association consent to be placed upon our rule-book the proposed alterations as contained in the percentage for overtime; also any member knowing of another member working and not reporting to his Branch Secretary will be liable to the same penalty."—*Western Mail.*

MEETINGS.

FRIDAY, APRIL 30.

The Architectural Association.—Mr. Hugh Stannus on "The Classic Cornice." 7.30 p.m.

Royal Institution. — Professor J. J. Thomson on "Cathode Rays." 9 p.m.

Institution of Mechanical Engineers. — Ordinary General Meeting (continued).—Paper by Mr. W. G. Walker, entitled "Experiments on Propellor Ventilating Fans, and on the Electric Motor Driving Them." 7.30 p.m.

SATURDAY, MAY 1.

The Architectural Association.—Sixth Spring Visit, new Fever Hospital, Lewisham.

Royal Institution.—The Rev. J. P. Mahaffy on "The Greek Theatre According to Recent Discoveries."—I 3 p.m.

St. Paul's Ecclesiological Society.—Visit to the Church of St. Saviour, Southwark, under the guidance of Mr. G. H. Birch, F.S.A., at 3 p.m.

Institution of Junior Engineers.—Visit to Blackwall Tunnel Works. 3 p.m.

Sanitary Inspectors' Association.—Mr. W. H. Grigg on "The Proposed Drainage By-laws for the Metropolis." 6 p.m.

Sanitary Institute (Demonstrations for Sanitary Officers). — Inspection at the Sewage Outfall Works, Barking.

MONDAY, MAY 3.

Royal Institute of British Architects.—Annual General Meeting. 8 p.m.

Society of Arts (Cantor Lectures).—Mr. Lewis F. Day on "Design in Lettering.'—I. 4.30 p.m.

Society of Engineers.—Mr. H. O'Connor on "Automatic Gas Station Governors." 7.30 p.m.

Liverpool Architectural Society. — Annual General Meeting. Closing address by the President, Mr. G. Bradbury. 6 p.m.

WEDNESDAY, MAY 5.

The Architectural Association.—Banquet to Celebrate the Jubilee of the Association, to be held at the Trocadero Restaurant, Piccadilly-circus. 7 p.m.

Carpenters' Company Lectures (Carpenters' Hall, London Wall), — Lectures on Carpentry and Joinery.

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Designs for Schools	Chesterfield Sch. Bd.	.....	May 31

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered
Hall and Offices, Northgate	Market Weighton Parish Council	Gelder & Kitchen, Archt. 76, Lowgate, Hull	May 4
Nine Houses, Stanningley-road, near Leeds	S. Firth	C. F. Wilkinson, Archt. 35, Park-square, Leeds	do.
Pipe Sewer, Hillfoot-road	Much Woolton (Lancs) U.D.C.	A. Shawfield, Surv Woolton-street, Much Woolton	do.
Paving, &c. Dilston-terrace	Amble U.D.C.	M. Gibson, Surv. 81, Queen-street, Amble	do.
Pateley Kerbing, &c.	Knaresborough R.D.C.	Surv. 44, Station-parade, Harrogate	do.
*Kerbing, Tarpaving, Channelling, &c. Roadway	Lewisham Bd. of Wks	Surveyor, Offices, Catford, S.E.	do.
*Wood Paving	Belfast Corp.	City Surveyor	May 5
Sewering, Paving, &c.	Belfast Corporation	Sir Samuel Black, Town Clerk	do.
Additions, &c. to Free Church, Lochmaben, N.B.	.....	T. E. Watson, National Bank House, Lochmaben	do.
Sewers, &c. Canklow, near Rotherham	.....	J. Platt, Surv. High-st.	do.
Villa and Surgery, Clayton West, Huddersfield		J. Kirk & Sons, Archts. Huddersfield	May 6
Whinstone	Gt. Driffield (Yorks) U.D.C.	G. B. Tonge, Council Offices	do.
Two Blocks of Houses, Stanley, Durham	West Stanningley Colliery Owners	T. E. Crossling, Archt. Stanley	do.
Walling and Fencing, Cheetham	Manchester Corp.	City Surv. Town Hall	do.
House, Morley, Yorks	S. Sharp	G. B. Clegg. Archt. 2, Peel-street, Morley	May 7
Alterations to Business Premises, New Tredegar	Mrs. Thomas	H. Sketch, Archt. New Tredegar	do.
Additions to Workhouse	East Ashford (Kent) Union	H. Hamilton, 11, Bank-street, Ashford	do
Whinstone Road Metal, Hunmanby Yorks	Bridlington R.D.C.	C. Gray, Council Offices	do.
Schools, Bowerham-lane	Lancaster School Bd.	H. D. Wilson, 85, Church-street, Lancaster	May 8
Laundry	Blackburn Union	J. Aspinall, Archt. Victoria-street, Blackburn	do.
Manse, Templepatrick, co. Antrim	.....	S. P. Close, Archt. 53, Waring-street, Belfast	do.
Chapel and School, Holton-road, Barry Dock, Glam.	.....	Rev. T. P. John, 25, Regent-street, Barry Dock	May 10
*Erecting Asylum, Hendon	Central London Sick Asylum	Giles, Gough, & Trollope, 28, Craven-street, W.C.	do.
Brewery, Plymouth	Polkinghorne & Co.	G. Adlam & Sons, Engr. Bristol	do.
Covered Market	Plymouth Corp.	J. H. Ellis, Town Clerk	do.
Extension of Business Premises, Bristol	H. Ashman & Co.	J. Hart, Archt. Corn-st. Bristol	do.
Residence, Stabling, &c. Langley-lane, Baildon, Yorks	.....	Fairbank & Wall, Archt. Craven Bank Chambers, Bradford	May 11

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
*Pitching and Channel Kerb	West Ham Council	Lewis Angell, Town Hall, Stratford, E.	May 11
*Making-up and Paving Streets	County Borough of West Ham	do.	do.
*Foreman for Macadam Roads	Warrington Corp.	E. J. Lovegrove, Southwood-lane, Highgate, N.	May 12
*Painting	Hornsey U.D.C.	R. H. Dorman, County Surveyor, Armagh	May 13
Waterworks	Manorhamilton (Ireland) Union	A. A. Millward, Vestry Hall, Pancras-road, N.W.	do.
*Work in connexion with Infirmary	St. Pancras Guardians	Town Clerk	do.
*Erecting Swimming Bath	Rotherham Corp.	Lambert & Rees, Archt. Bridgend	May 14
Alterations, &c. to Town Hall, Bridgend, Glam.	Committee	R. Robinson, C.E. 6, Dixon-terrace, Darlington	May 15
Sewers, &c.	Barnard Castle R.D.C.	A. Ansell, 63, Finsbury-pavement, E.C.	do.
*Infirmary	Farnham and Hartley Wintney Sch. District	W. H. Dashwood Caple, Archt. 1, St. John-sq. Cardiff	May 17
Library at the Docks	Cardiff Corp.	P. Griffith, 55, Parliament-street, S.W.	do.
*Boiler House, &c.	Cromer Gas and Coke Co.	County Offices, Trowbridge	do.
*Recreation Rooms at Asylum	Wilts County Asylum	Archt's. Dept. Springgardens, S.W.	May 18
*Public Convenience, Brockley	LondonCountyCouncil	C. M. Shiner, 2, Walbrook, E.C.	do.
*Erecting Portion of School	Grays Thurrock Sch.B.	Lewis Angell, Town Hall, Stratford, E.	do.
*Engine and Boiler Houses and Electric Lighting Buildings	County Borough of West Ham	E. R. Ridgway, Long Eaton, Notts	May 25
*Wrought-iron Roof, Iron and Steel, Alterations of Grindery, Extension of House	Leys Malleable Casting Co. Limited	A. B. & W. Scott-Deakin. Archt. Pride Hill, Shrewsbury	No date
Additions to National Schools, Smethcote, Salop	.....	W. Mackenzie, Archt. 42, Stevenson-street, Oban	do.
Manse, Acharacle, nr. Oban, N.B.	.....	W. S. Braithwaite, Archt. 6, South Parade	do.
Two Houses, Kelso-road, Leeds	.....	J. Huckerby, Surv. 8, The City, Beeston	do.
Pair Villas, Beeston, Notts	.....	C. Parsons, Archt. 9, Grimshaw street, Burnley	do.
Shops, Yorkshire-street, &c. Burnley	.....	A. H. Goodall, Archt. Market-street	do.
Technical School, Leeuside	Nottingham Sch. Bd.		do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Required.	Salary.	Applications to be in.
*Clerk of Works	Leicester Corp.	3*l.* 10s. per week	May 6
*Engineer and Foreman of Repairs	City of London Asylum	2*l.* 10s. per week	No date

Those marked with an asterisk (*) are advertised in this Number. *Competition*, iv. *Contracts, pp.* iv. vi. viii. & xxi. *Public Appointments, pp.* xviii. & xxi.

Professor Banister Fletcher on "Timber Roofs; also Composite Roofs." 8 p.m.

Royal Archæological Institute.—(1) Mr. Talfourd Ely on "Wreaths." (2) Paper by Professor T. McKenny Hughes, entitled "A Comparison of Flint Implements of Palæolithic and Neolithic Age." 4 p.m.

Society of Arts.—Mr. C. E. D. Black on "The Railway to India." 8 p.m.

Builders' Foremen and Clerks of Works Institution.—Ordinary Meeting of the Members. 8 p.m.

Edinburgh Architectural Society.—Mr. J. J. Henderson on "Cement and Concrete." 8 p.m.

THURSDAY, MAY 6.

The Architectural Association.—Conference to be held at No. 9, Conduit-street, when subjects connected with the policy of the Association and also the question of suitable accommodation will be discussed. A collection of drawings made by past students in the classes to be exhibited. 3 p.m. Annual Soirée, St. George's Hall, Langham-place. 8 p.m.

Society for the Encouragement of the Fine Arts.—Second Conversazione, at the Galleries of the Royal Society of British Artists, Suffolk-street.

Society of Antiquaries. 8.30 p.m.

FRIDAY, MAY 7.

Institution of Junior Engineers.—Mr. L. G. Ferriera on "Electrical Railway Signalling." 8 p.m.

SATURDAY, MAY 8.

Royal Institution.—The Rev. J. P. Mahaffy on "The Greek Theatre According to Recent Discoveries."—II. 3 p.m.

Edinburgh Architectural Association.—Visit to Hopetoun House Policies.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

6,288.—SLIDING PIVOTTED WINDOW SASHES: *W. Johnson.*—In order to obtain a self-balancing reversible window-sash in a manner that may be applied to the existing plan of window, and even to existing window, inventor hangs sashes with galvanised steel wires, &c., fixed to lower corners of upper sash, then brought over pulleys and fixed to the centre (or bottom) of lower sash. Two metal bars are sunk in edgeways between sash stile, and a double stile and several other small adjuncts are provided.

7,606.—WASTE OR SLOP WATER-CLOSETS: *A Hocking.*—The object of the invention is to render it impossible for any article to get lodged in the basin of the water-closet or pass down the shaft of an earth closet. Inventor claims the improved arrangement and construction of an apparatus to prevent any blockage of closets by adopting a longitudinal diaphragm, a movable flap of terra-cotta, and other items of apparatus.

8,436.—FLAT WHITEWASH BRUSHES: *T. J. Pickford.*—The handle of brush is slightly tapered at top; the binding for bristles, &c., consists of sheet metal, tapering, with small holes along top for the linking of the binding wire. After wire is linked through the holes, cement is poured on the roots of the bristles.

8,887.—TILES, SLABS, WALLINGS, &c.: *J. S. Rigby.*—Inventor forms tiles, slabs, &c., of earthenware, glass, terra-cotta, &c., with indents and projections which are not at right angles with surface, but hang over. These may be arranged in different directions, and may be produced in a coat of fluxing material applied to one surface of the tile, slab, &c.

10,586.—TILED HEARTHS FOR DOMESTIC FIREPLACES, &c.: *J. Simpson.*—The inventor provides a hearth capable of removal by constructing a frame of angle iron (wrought or cast) of the shape of hearth, with a sheet metal base riveted thereto, on which tiles may be arranged to pattern as desired.

980.—SURFACES TO RECEIVE PLASTER: *E. Edwards.*—This invention consists in the use of longitudinally grooved boards, the grooves having inclined sides, so that they are of dovetailed section. Grooved surface is left rough. The boards are nailed to rafters, studs, or other timbers.

1,725.—SASH FASTENER: *J. H. Watson.*—This invention comprises a counterpoised and swinging catch arm, loosely mounted or pivotted to a bracket, &c., on one of the meeting bars, and arranged to swing forward and to overhang the edge of other bar on bars coming together, and to be pushed back on bars approaching each other. In another form the catch arm is actuated by a spring. Inventor also claims other combinations on same principle.

NEW APPLICATIONS FOR LETTERS PATENT.

APRIL 12.—9,223, W. Greenwood, Safety Chain Fastenings for Doors.—9,230, A. Ansell, Sliding Sashes and Frames.—9,237, J. Douglas, Ventilator.—9,270, S. Lawrence, Sash Fasteners.—9,271, S. Lawrence, Raising and Lowering of Window Sashes, &c.—9,272, G. Young, Tool for Forming Grooves in Wood, &c.—9,315, C. Richardson, Asphaltic Pavements, &c.—9,316, L. Kasson, Paving Compositions.

APRIL 13.—9,357, W. Jackson, Window Sashes or Frames.—9,413, E. Blumenan, Countersink Bits.—9,447, J. and S. Beake, Compositions or Paints for Preserving Structures.—9,465, J. Kaiser and J. Wilbrand, Door Fastenings.—9,466, J. Kaiser and J. Wilbrand, Door Fastenings.

APRIL 14.—9,479, J. Brückner, Self-closing Door Hinge.—9,494, J. Grislain, Thermo-Automatic Water Waste Exhauster.—9,549, G. Burt, Machinery for Boring Tunnels.—9,551, A. Austin and E. Caporn, Door Fastener, &c.—9,557, T. Harries, Device for Use by Painters.—9,566, R. Reeves, Treatment of Sewer Air or other Obnoxious Gases, and also Sewage Matter During Transit in Drains.

APRIL 15.—9,617, J. Cresswell, Inlet Ventilator.—9,622, H. Craig, Syphon Water Closets.—9,627, W. Osment, Sliding Window Sashes.—9,650, W. Allman and J. Cope, Heating Buildings and other Places by the Circulation of Hot Water.—9,698, W. Drayson, Mechanism for Starting the Syphons of Flushing Cisterns.

APRIL 17.—9,725, J. Moore, Regulation and Fastening of Window Sashes in their Frames.—9,726, H. Doulton, Joints of Stoneware Pipes.—9,768, J. Slater, Pedestal Water Closets.—9,792, C. Connock, Adjustable Chisel Fence.

PROVISIONAL SPECIFICATIONS ACCEPTED.

5,714, H. Johnston, Fitting up Electric Bells.—7,709, W. Oates and J. Green, Connecting Junctions and Bends to Main Drain Pipes.—7,931, C. Greenhalgh, Waste Water Closets.—7,937, H. Parker, Pedestal Bracket Seats for Water Closets, &c.—8,116, H. Lloyd, Sewer Drains, &c.—8,154, F. Holton and T. Morley, Window Frame and Sashes.—8,236, A. Habershon, Fireplaces.—8,268, J. Sayers, Artificial Stone.—8,484, M. Ahern, Bricks, Tiles, &c.—8,635, J. Cooper and F. Bensley, Step and other Treads.—8,688, F. Baisdell, Platforms or Balconies for use on Houses and other Buildings.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

8,265, T. Rhodes and others, Flushing Closets, &c.—9,497, R. Ellis, Window Fasteners.—11,944, L. Gorisse, Door Hinges, &c.—13,063, A. Pollard, Cleaning Paint or Varnish Brushes, &c.—13,620, E. Evans, Sash or Window Fasteners.—25,880, A. van der Vygh and others, Fireproof Artificial Stone.—3,784, W. Turner, Graining Tool.—4,141, T. Horn, Window Glass.—5,439, W. Wilkinson, Paving Blocks, Tiles, &c.—6,426, F. Golby, Door Hinges.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

April 13.—By C. BUTTERS & SONS (at Burslem).

Tunstall, Staffs.—47, Sneyd-st., f.	£600
Wolstanton, Staffs.—"Park House," c.	705

April 15.—By JONES, LANG, & CO.

Acton.—1 to 4, Friar's-cottages, f., r. 62*l.* 8s.	795
Willesden-lane.—A building estate of 7 a., f.	3,950

By BUCKLAND & SONS.

Wantage (near), Berks.—"Palmer's Farm," 308 a. 2 r. 12 p., f.	1,475
Dorney, Bucks.—The "Palmer Arms" p.h., f., r. 45*l.*	2,000
Lake End.—The "Pine Apple" b.h., f., r. 32*l.*	1,300
Taplow, Bucks.—The "Mile House" b.h., and an orchard, 4 a. 2 r. 1 p., f., r. 50*l.*	3,25

April 21.—By HAMPTON & SONS.

Maida Vale.—Clifton-gardens, i.g.r. 45*l.*, u.t. 51 yrs., g.r. 11*l.*	795
11, Clifton-gardens, u.t. 51½ yrs., g.r. 1*l.*, r. 100*l.*	1,100
Paddington.—5, Warwick-mews, u.t. 41½ yrs., g.r. 5*l.*, r. 20*l.*	120

By LEVENS, SON, & HOARE.

Dulwich.—Landells-rd., f.g.r. 104*l.*, reversion in 81 yrs.	2,500
Finchley.—Lichfield-grove, f.g.r. 6*l.* 6s., reversion in 71½ yrs.	135
Anerley.—11, Stodart-rd., f., r. 30*l.*	385

April 22.—By C. C. & T. MOORE.

Mile End.—68 and 68a, White Horse-lane, and 2a and 2b, Skidmore-st., u.t. 68½ yrs., g.r. 17*l.*, r. 179*l.* 8s.	1,310
20, Venour-rd., and 21, Ewing-st., u.t. 78 yrs., g.r. 10*l.* 10s., r. 72*l.* 16s.	500

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G.	ton	8/0/0 9/0/0
Teak, E.I.	load	11/10/0 16/10/0
Sequoia, U.S.ft.cu.		1/8 1/10
Ash, Canada load		3 5/0 4/10/0
Birch, do.		3/15/0 5/10/0
Elm, do.		4/0/0 5/5/0
Fir, Dantsic, &c.		2/15/0 4/15/0
Oak, do.		2/10/0 3/10/0
Canada		5/5/0 6/5/0
Pine, Canada red		0/0/0 0/0/0
Do. Yellow		1/15/0 3/15/0
Lath, Dantsic, fath		4/10/0 5/10/0
St. Petersburg		5/0/0 8/10/0
Wainscot, Riga, &c., log		2'0/0 4 5/0
Odessa, crown		2/0/0 4 5/0
Deals, Finland 2nd & 1st std 100		9/0/0 9/10/0
Do. 4th & 3rd		9/0/0 9/10/0
Do. Riga		7/10/0 8/10/0
St. Petersburg, 1st yellow		11/0/0 13/10/0
Do. 2nd yellow		10/0/0 11/0/0
Do. white		9/10/0 11/10/0
Swedish		9/0/0 16/10/0
White Sea		10/10/0 17/0/0
Canada, Pine 1st		19/10/0 22/10/0
Do. do. 2nd		14/0/0 26/0/0
Do. do. 3rd, &c.		6'10/0 10/0/0
Do. Spruce, 1st.		10/10/0 12/0/0
Do. do. 3rd and 2nd		8/0/0 9/5/0
New Brunswick		7/15/0 8 5/0
Battens, all kinds		5'0'0 20/0/0
Flooring boards, sq., 1 in. prep. 1st		0 8/6 0/15/6
Do. 2nd		0/7/0 0/12/0
Other qualities—		0/5/0 0/7/0
Cedar, Cuba, ft.		/4½ /5
Honduras, &c.		/4 /5
Mahogany, Cuba St. Domingo, cargo av.		/5 /6½ /4½ 1/3
Mexican, do. do.		/4 /5
Tobasco, do. do.		/4½ /7
Honduras, do.		/5 /4½
Box, Turkey, ton		4/0/0 25/0/0
Rose, Rio		7/0/0 14/0/0
Bahia		8/0/0 12/0/0
Satin, St. Doming.		0/0/7 0'2/0

TIMBER *(continued)*.		
Satin, Porto Rico		0/0/7 0/1/6
Walnut, Italian		0/0/2 0/0/7
METALS.		
Iron—Pig, in Scotland	ton	2/3 6 0/0/0
Bar, Welsh, in London		5/15/0 5/17/6
Do. do. at works in Wales		5/10/0 5/12/6
Do. Staffordshire, in London		5/15/0 6/10/0
COPPER—British cake and ingot		52/0/0 52/10/0
Best selected		52/10/0 53/0/0
Sheets, strong		57/0/0 0/0/0
Chili bars		48/2/6 0/0/0
YELLOW MTL lb.		4'7-8 5/0
LEAD—Pig, Spanish	ton	11/15/0 11/16/3
English com. brands		11/17/6 12'0/0
Sheet, English 6 lbs. per sq. ft. and upwards		13'1/3 0/0/0
Pipe		13/11/3 0/0/0
ZINC—English sheet	ton	20/10/0 0/0/0
Vieille Montagne		21/10/0 0/0/0
Spelter		17/5/0 27/7/6
TIN—Straits		59/18'9 0/0/0
Australian		61/5/3 61/15/0
English Ingots		63/15/0 64/5/0
Banca		61/0/0 0/0/0
Billiton		59/15/0 60/0/0
OILS.		
Linseed	ton	14/17,6 0/0/0
Cocoanut, Cochin		27/15/0 0/0/0
Do. Ceylon		24/0/0 0/0/0
Palm, Lagos		24/10/0 0/0/0
Rapeseed, English pale		27/10/0 27/15/0
Do. Brown		27/0/0 27/10/0
Cottonseed ref.		25/17/6 26/10/0
Oleine		18/10/0 19/10/0
Lubricating U.S.		0/6/3 0/7/6
Do. black		0/4/9 0/5/6
TAR—Stockholm barrel		22/0 0/0/0
Archangel		0/12/6 0/0/0
Turpentine		21/0/0 0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. N.B.—We cannot publish Tenders unless authenticated by the name and address of the sender: and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under £100, unless in some exceptional cases and for special reasons.]

BANFF.—For the erection of police-stations, for the County Council. Mr. F. D. Robertson, architect, 92, Mid-street, Keith:—

Craigellachie Police-station.

Masonry.—Wm. Alexander & Sons, Dufftown	£333	0	0
Carpentry.—James Dey, Fookins, Botriphnie	120	0	0
Slating.—Alexander Tough, Craigellachie	49	10	0
Plumbing.—R. K. Rathie, Keith	3	0	0
Plastering.—James Munro, Aberlour	28	7	0
Painting.—Robert G. Grant, Aberlour	5	4	0
	539	1	0

Delnashaugh Police-station.

Masonry.—John Grigor, Dufftown	£319	0	0
Carpentry.—Peter Grant, Mills of Tomore	163	0	0
Slating.—James Warren, Ballindalloch	45	12	0
Plastering.—Hume Brothers, Dufftown	33	10	0
Plumbing.—R. K. Rathie, Keith	52	19	0
Painting.—Garden & Ward, Dufftown	7	0	0
Heating.—Robert Tindall, Aberdeen	13	9	0
	625	10	0

Dufftown Police-station.

Masonry.—Wm. Alexander & Sons, Dufftown	£420	0	0
Carpentry.—Wm. Russell, Fife Keith	184	7	0
Slating.—John Wilson, Dufftown	47	9	0
Plastering.—Sutherland & Reid, Keith	39	1	6
Plumbing.—R. K. Rathie, Keith	19	10	0
Painting.—Garden & Ward, Dufftown	6	5	0
Heating.—Robert Tindall, Aberdeen	13	12	6
	730	5	0

BARNSTAPLE.—For the construction of a concrete impounding sewer, Cross-street, for the Town Council. Mr. H. Masterton, engineer, Boutport-street, Barnstaple:—

James Nuttall	£1,120	W. C. Shaddock, 5, Hillsboro', Plymouth*	£747
J. Parnenter	840		
H. Burgess	840		

* Accepted.

BRANDON (Suffolk).—For additions, &c., to school buildings, High-street, for the School Board. Messrs. E. Boardman & Son, architects, Queen-street, Norwich:—

Parsons & Sons	£1,995 12	C. Fryer	£1,560 0
R. Mayes	1,739 0	Collins & Barber	1,550 0
T. H. Yelf	1,624 0	J. G. Cowell, Soham, Cambridgeshire*	1,483 0
W. T. Newson & Sons	1,588 14		

* Accepted.

BROMLEY.—For erection of the "Royal Bell" hotel, Bromley, Kent. Mr. A. Saunders, architect:—

F. & F. J. Wood	£21,598	R. Hannen	£18,970
Maid & Morphew	20,485	W. Downs	18,690
Wallis & Son	20,400	Crosby	18,450
W. Shurmur	19,890	Patman & Fotheringham	17,851
F. & H. Higgs	19,480		

CARDIFF.—For the erection of new bottling stores at the Eagle Brewery, for Messrs. W. W. Nell, Limited. Messrs. Veall & Sant, architects. Quantities by the architects:—

W. Thomas & Co.	£2,475	Turner & Son	£1,939
Williams & Thomas	2,098	Knox & Wells	1,900
J. Blight	2,189	Cadwallader & Hockridge	1,900
Henry Gibbon	2,050	Joseph Thomas	1,890
S. Shepton & Son	2,035	J. H. Venning	1,885
John Gibson	2,013	W. Symonds & Co.	1,820
Melhuish Bros.	1,998	James Allan, Cardiff*	1,798
Jones & Maddren	1,996		

* Accepted.

DORCHESTER.—Accepted for building a house in the Cornwall-road, Dorchester. Mr. A. L. T. Tilley, architect, 16, Cornhill, Dorchester:—

Kendall & Co., Dorchester £1,060

GOSPORT (Hants.)—For alterations, &c., at the workhouse, Parkroad, for the Alverstoke Board of Guardians. Mr. H. A. F. Smith, architect, Star-chambers, High-street, Gosport. Quantities by the architect:—

Clarke & Sons	£4,238	C. M. Dash	£4,032
T. P. Hall	4,197	C. J. Lear & Son	3 970
T. W. Quick	4,126	W. T. Dugan, Portsmouth (accepted)	3,758
J. Crockerell	4,052		

HALE END (Essex).—For mission hall at Hale End, Chingford. Mr. F. Boreham, architect:—

Foster	£1,210	Reed	£1,106
W. Shurmur	1,188		

HANWELL.—For the erection of eight semi-detached villa-residences, in Shakespear-road, for Drayton Park Syndicate:—
J. Christie, Uxbridge-road Station £3,640
[No competition.]

ILFORD.—For rebuilding the "Angel Hotel," Ilford. Mr. H. W. Wakley, architect:—

Patman & Fotheringham	£9,927	Jerrard & Son	£8,629
R. Mitchell	9,620	W. Watson	8 570
Hearle & Farrow	9,572	Scrivener & Co.	8,380
Edwards & Medway	9,075	R. Lamble	8,320
B. E. Nightingale	8,770	Dearing & Son	8,230
W. Shurmur	8,690		

IPSWICH.—For additions to Tower House, for the School Board. Mr. J. S. Corder, architect, Tower-street, Ipswich. Quantities by Mr. J. Sydney Parmenter, Ipswich:—

Parkington & Son	£2,599	G. Kenney	£2,295
Grimwood & Sons	2,569	T. Kenney	2,293
T. Hipwell	2,527	Bennett, Ipswich*	2,185
E. West	2,460		

* Accepted.

KING'S LYNN.—For the ironwork for a grain warehouse, "Bentinck" Dock:—

	About 230 tons cast iron at per ton.	About 300 tons wrought iron at per ton.
Lockerbie & Wilkinson	£7 12 6	£11 5 0
The Horseley Co. Ltd.	6 15 0	10 8 9
John Abbot & Co., Ltd.	6 15 0	10 7 6
Newton, Chambers & Co., Ltd.	7 0 0	10 0 0
Thornton & Crebbin	6 16 5	9 16 6
Cochrane & Co.	7 0 0	9 10 0
Cochrane, Grove & Co., Ltd.	6 7 6	9 7 6
The Butterley Co., Ltd.* (accepted)	6 0 0	9 5 0

LEYTON.—For rebuilding the "King William IV." public-house, High-street, Leyton. Messrs. Shoebridge & Rising, architects:—

E. Toms	£5,850	W. Shurmur	£5,544
J. Anley	5,780	Holloway Bros.	5,532
Edwards & Medway	5,677	Carmicheal	5,530
Parker	5,587	Lascelles	5,400
Scharien & Co.	5,587		

LEYTONSTONE.—For new premises for the London and Provincial Banking Company. Mr. A. R. Barker, architect:—

Roberts	£6,394	Patman & Fotheringham	£5,950
Wood	6,257	Gardner	5,930
W. Shurmur	6,236	J. Bentley	5,805
Chessum & Son	5,997	Gough	5,654
Mattocks	5,991	Carmicheal	5,319

LONDON.—For the erection of works at Gainsborough-road, Victoria Park, for Messrs. G. Ellis & Co. Mr. W. H. Duffield, architect. Quantities supplied:—

Beale	£2,290	Gladding	£1,780
Sabey & Son	2,128	Easton	1,693
Patman & Fotheringham	1,911	A. White & Co.	1,677
Chessum	1,798		

LONDON.—For the erection of warehouse, Hope Wharf, Rotherhithe, S.E., for Mr. A. F. Gardner. Mr. A. R. Stenning, architect. Quantities supplied:—

Whitehead & Co.	£1,475	A. White & Co.*	£1,300
Outhwaite & Co.	1,317	Sparks & Co.	1,287

* Accepted.

LONDON.—For erecting a new police-station at Poplar for the Receiver for the Metropolitan Police District. Mr. J. Dixon Butler, Architect. Quantities by Mr. W. H. Thurgood:—

Higgs & Hill	£10,843	Holloway Bros.	£10,300
Kilby & Gayford	10,600	Sydney Hart	10,170
W. Shurmur	10,593	Scrivener & Co.	10,156
Gregar & Son	10,590	Grover & Son	10,097
Lawrance & Son	10,540	Lathey Bros.	10,040
Perry & Co.	10,500	Willmott & Sons	9,985

LONDON.—For proposed work to Canning Town Congregational Church. Mr. F. Troup, architect:—

Maddison	£1,400	Thomerson & Son	£1,115
North	1,140	Gregar	1,050

LONDON.—For alterations and shop-fittings, Home and Colonial Stores, 4, Station Parade, Hornsey Rise. Mr. Robert Willey, architect:—

Smith	£240	E. Houghton & Son, Stroud Green (accepted)	£218

LONDON.—For pulling down and re-erecting "The Prince George" public-house, Hillingdon-street, Walworth, for Messrs. Barclay, Perkins, & Co., Limited. Mr. George Hubbard, architect, 23, Finsbury-circus, E.C.:—

Balaam Bros.	£4,215	H. Eames	£4,090
H. Wall & Co.	4,198	H. Burman & Son	4,050
J. C. Richards	4,186	William Downs	3,848

LONDON.—Accepted for new doctor's room and asphalting at the Poland-street Workhouse, for the Guardians of the Westminster Union. Messrs. John Waldram & Son, surveyors, 12, Buckingham-street, W.C.:—

New Doctor's Room.

Johnson & Manners £62 10 0

Asphalting.

Hobman & Co. £40 15 4

LONDON.—For the erection of a warehouse in Ironmonger-lane, E.C., for Mr. L. Salomons. Mr. George Waymouth, architect, 23, Moorgate-street, E.C. Quantities by Mr. A. Paull, 6, Quality-court, W.C.:—

Colls & Sons	£2,985	Lown & Sons	£2,735
Grover & Sons	2,848	Dove Bros.	2,685
Richardson Bros.	2,744	H. J. Johnson	2,345

LONDON.—For new premises at Plaistow Wharf, Tidal Basin, for Messrs. Lyle & Sons. Mr. J. Slater, architect:—

Holloway Bros.	£13,300	Holland & Hannen	£11,837
W. Shurmur	12,771		

LONDON.—For new warehouse, Green Dragon-court, Blackfriars, for Messrs. Corby. Mr. W. H. Punnett, architect:—

Spencer & Co.	£2,150	Blyton	£1,910
W. Shurmur	2,142		

LONDON.—For warehouse at Broadwall, S.E. Mr. Ed. Power, architect. Quantities by Mr. W. Barnett:—

Allen & Son	£10,072	Myring & Son	£9,330
Britton	9,897	Ashby & Horner	9,327
H. & F. Higgs	9,778	W. Downs	9,168
Edwards	9,736	W. Shurmur	8,998

LONDON.—For alterations, &c., to the "White Hart" Hotel, New Cross-road. Messrs. Eedle & Meyers, architects:—

J. Anley	£3,850	W. H. Lascelles & Son	£3,650
J. Rider & Son	3,830	W. Faulkner	3,537
W. Shurmur	3,796	B. E. Nightingale	3,445

LONDON.—For warehouse, &c., at 89, Worship-street, E.C., for Messrs. L. Rose & Co. Mr. G. Hounblower, architect:—

Holloway Bros.	£11,800	McCormick	£9,888
Lidstone & Co.	10,565	J. Grover & Son	9,870
Goff & Co.	10,490	Holland & Hannen	9,790
Marsden	9,916	W. Shurmur	9,669
Faulkner	9,900	Kilby & Gayford	9,436

LONDON.—For new warehouse at Shoreditch, for Messrs. Clark, Hunt, & Co. Mr. W. Gilbee Scott, architect:—

Godfrey & Son	£5,572	C. Cox	£4,990
W. Shurmur	5,475	G. E. Todd	4,779
T. Boyce	5,380	Harris & Wardrop	4,748
Ashby Bros.	5,197	Ceaton & Co.	4,695
F. & F. J. Wood	5,187	J. Carmicheal	4,590
Woodward & Co.	5,000	J. Chessum & Son	4,490

LONDON.—For foundations of new premises, for the Argus Printing Company, Tudor-street, E.C. Mr. C. Val Hunter, architect:—

Jerrard & Son	£1,169	Patman & Fotheringham	£1,011
Lascelles & Sons	1,144	F. & H. Higgs	1,011
W. Downs	1,073	Holliday & Greenwood	989
W. Shurmur	1,044		

LONDON.—For new hall, dispensary, &c., at Bromley-by-Bow. Mr. R. H. Hill, architect:—

J. Grover & Son	£2,992	Craske & Co.	£2,475
W. Shurmur	2,880	Hollingsworth	2,337
Holloway Bros.	2,750	Turner & Co.	2,269

LONDON.—For premises at Nassau-street, W. Mr. J. Slater, architect:—

D. Prosser	£6,212	Holloway Bros.	£5,700
W. Shurmur	6,083	Kilby & Gayford	5,636
Patman & Fotheringham	5,851	Webber	5,432

LONDON.—For additions to their Hornsey-road works, for Messrs. Shackell, Edwards, & Co., Limited. Mr. W. A. Aickman, architect, 34, Gresham-street, E.C. Quantities by Messrs. Raven & Crickmay, 18, Adam-street, W.C.:—

Holloway Bros.	£4,868	J. W. Falkner & Sons	£3,780
E. Lawrence & Sons	4,080	Dove Bros.	3,775
Jas. Smith & Sons	3,935	Rudd & Son, Grantham*	3,993
J. Grover & Son	3,880		

* Accepted.

LONDON.—Accepted for reconstructing gateway, and building fire-proof floor at van works, New-road, E.:—
George Barker, Mile End £100

LONDON.—Accepted for copper setting and furnace work at Brewery, Ratcliff:—
George Barker, Mile End £150

LONDON.—Accepted for the erection of villa residences at Clapham Common, for Mr. Thomas Ingram:—
George Barker, Mile End £14,080

LONDON.—For alterations and additions to the general offices of the Lambeth Water Company, Brixton Hill. Mr. John A. Gill Knight, architect, 21, Godliman-street, E.C. Quantities by Mr. E. J. Sadgrove, 22, Surrey-street, Strand, W.C.:—

D. Gibb & Co.	£5,330	Caudler & Sons	£4,620
Holloway Bros.	5,170	Rice & Son	4,581
Johnson & Co., Ltd.	4,693	Docwra & Son	4,372
Maxwell Bros., Ltd.	4,651	T. E. Mitchell (accepted)	4,135

LONDON.—For the erection of a new store-room, for the Lambeth Waterworks, at Brixton. Mr. John A. Gill Knight, architect. No quantities supplied:—

T. E. Mitchell	£920	Docwra & Son*	£703
Rice & Son	871		

* Accepted.

LONDON.—For rebuilding Nos. 22 and 23, Warwick-lane, and 10 and 11, Paternoster-square, E.C. Mr. Walter Stair, architect, 9, Queen Victoria-street:—

Allen & Sons	£9,225	Chessum*	£5,660
Evans	6,998	Richardson Bros.	5,488
Spencer & Co.	5,927		

* Accepted.

LONDON.—For alterations to Nos. 10 and 11, Bunhill-row, City. Mr. Walter Stair, architect, 9, Queen Victoria-street:—

Richardson Bros.	£795	Chessum & Sons	£590
Lascelles & Co.	617		

LONDON.—For bar-fittings at the "Coach and Horses" inn, Broad-street, Lambeth, S.E., for Nalder & Collyer's Brewery Company, Limited. Messrs. R. M. Chart & Son, architects, Union Bank-chambers, Croydon:—

Sage	£426 0	Goulder, Croydon*	£246 0

* Accepted.

For outside glazed and illuminated signs:—

J. Biggs	£31 10	Christie	£28 10

LONDON.—For alterations, &c., at "The Cat and Mutton" public-house, London Fields, N., for Mr. H. S. Rocke. Mr. Henry Roberts, architect, 113, Lewisham-road, S.E.:—

Ellis	£850	Simpson & Cove	£735
Taylor	785	Eames (accepted)	650

LONDONDERRY.—For the erection of a gate lodge, Dullerton, for Major-General Bond. Mr. W. E. Pinkerton, architect, 8, Diamond Derry:—

John Gelligher & Co.	£715	Joseph Colhoun, Strand-road, Derry (accepted)	£615
Robert Colhoun	658		

SPITTAL.—For the erection of a block of fifteen houses, Promenade, for Messrs. Baston. Mr. J. L. Miller, architect, 39, Hide Hill, Berwick-on-Tweed:—

Masonry.

M. Gray & Sons	£3,470	D. Storar & Son	£2,930
H. Elliott & Son, Berwick*	3,060		

Joinery.

Henderson Bros.	£1,650 0	A. C. Burn, Spittal*	£1,388 0
W. Brigham	1,498 10	T. Davidson	1,380 0
J. Dalgetty	1,422 0		

Slating and Plastering.

J. Smart	£765 0	J. Turner & Sons	£695 15
P. Rule & Sons	736 0	A. Sidey, Berwick*	548 10

Plumbing.

G. McAdam	£325 9 0	G. Smith	£263 10 0
J. Piercy	295 15 0	J. Wood	277 10 8
Teesdale	293 12 6	J. Hope	256 0 0
J. Wilson & Son	287 0 0	R. W. Sidey	256 0 0
D. A. Lamb & Son	270 0 0	C. Manderson, Berwick*	232 15 0

* Accepted.

MITCHAM (Surrey).—For the erection of laundry, &c., at schools, for the Holborn Union Guardians. Mr. C. Evans-Vaughan, architect, 25, Lowther-arcade, Strand, London:—

Wm Reason	£6,137
H. Wall & Co., Carlton-road, N.W. (accepted)	6,087

MITCHAM.—For the erection of the nave, aisles, baptistery, and north porch of the new Church of St. Mark, Mitcham, Surrey. Messrs. R. M. Chart & Son, architects, Union Bank-chambers, Croydon. Quantities by Messrs. Franklin & Andrews, 25, Ludgate-hill, E.C.:—

		Extra for glazed dado.
J. Burges	£5,200	—
J. Longley & Co.	5,195	£110 0
S. Page	4,955	64 0
E. J. Burnand	4,915	60 0
J. Dorey & Co.	4,875	55 0
J. Smith & Sons	4,700	68 0
D. Waller	4,600	75 0
D. Stewart & Sons	4,598	57 10
P. Peters & Son	4,087	63 15

MITCHAM.—For the erection of a fireproof warehouse at Western-road, Mitcham, for Mr. C. H. Blume. Messrs. R. M. Chart & Sons, architects, Union Bank-chambers, Croydon:—

D. H. Bacon	£2,249	E. J. Burnand, Wallington*	£1,508
Price & Price	2,200		
J. Burges	1,650		

* Accepted.

PENGE.—For repairs to the "Railway Bell" public-house, for Nalder & Collyer's Brewery Company, Limited. Messrs. R. M. Chart & Son, architects, Union Bank-chambers, Croydon:—

D. Waller	£138 10	W. Smith & Sons	£127 15
A. Bullock	133 10	Hanscomb & Smith	125 0
E. Goulder	129 10		

REIGATE.—For the erection of seven pairs of cottages and stabling, Blackboro'-road, Reigate, for the Reigate Industrial and Provident Society, Limited. Messrs. Baker & Penfold, architects, Reigate:—

	Seven Pairs of Cottages.	Stabling.
R. Killick	£7,995	£2,500 0
General Builders, Limited	7,951	2,921 10
J. J. Carrick	6,651	2,634 0
Buckland & Waters	6,195	2,287 0
E. Worssell	6,170	2,220 0
T. Bushby	5,936	2,205 0
R. Lee & Son	5,557	2,359 0
Bagaley & Sons	5,300	2,300 0
C. Nightingale & Sons	5,240	2,140 0

SOUTH SHIELDS.—For private street paving works, &c.:—

Barnes-road, South Frederick-street, &c.

M. D. Young	£1,366 3 5	Thornton & Co.	£1,254 6 0
G. E. Simpson, Newcastle-on-Tyne*	1,236 19 9		

Oxford-avenue and Marlborough-street.

M. D. Young	£562 18 0	Thornton & Co., South Shields*	£389 13 0
G. E. Simpson	487 7 6		

Isabella-street and Alfred-street.

M. D. Young	£217 15 0	G. E. Simpson, Newcastle-on-Tyne*	£196 10 6
Thornton & Co.	197 1 0		

Hunter-street, May-street, &c.

M. D. Young	£188 0 0	G. E. Simpson, Newcastle-on-Tyne*	£171 13 3
Thornton & Co.	174 9 0		

George Potts-street, Wawn-street, &c.

M. D. Young	£249 6 0	Thornton & Co., South Shields*	£228 6 0
G. E. Simpson	228 7 8		

Marsden-street, Moffett-street, &c.

M. D. Young	£428 12 0	G. E. Simpson, Newcastle-on-Tyne*	£394 18 1
Thornton & Co.	398 14 0		

George Potts-street.

G. E. Simpson	£20 19 6	Thornton & Co., South Shields*	£16 5 0
M. D. Young	17 13 0		

Erection and Completion of Urinal, Tyne Dock.

R. Summerbell & Son.	£69 0 0	Thornton & Co., South Shields*	55 4 0

Sewer at East Jarrow.

W. Wilson	£32 0 0	Thornton & Co., South Shields*	£26 5 0
J. Hornsby	30 16 8		

* Accepted.

C. B. N. SNEWIN

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SOUTH SHIELDS.—For the extension to boundary-walls, Harton Cemetery, for the South Shields Burial Board. Mr. Henry Grieves, architect, South Shields:—

G. T. Manners	£1,498 0 0	Robt. Allison, Whitburn*	£1,199 8 0
Robt. Brown	1,318 19 6	Robt. Hudson†	1,119 0 0
G. Thornton	1,293 8 0		

* Accepted. † Withdrawn.

TONBRIDGE.—For road works, for the Tonbridge Urban District Council. Mr. Wm. Lawrence Bradley, Engineer:—

Barden-road.

Chittenden & Simmons	£327 2 11	G. Brotherwood	£311 3 5
R. Langridge	340 0 0	W. H. Wheeler, London (accepted)	299 14 2

[Engineer's estimate, £302 4s. 4d.]

Northcote-road.

Chittenden & Simmons	£155 9 8	G. Brotherwood	£160 9 7
R. Langridge	160 0 0	W. H. Wheeler	122 11 8

[Engineer's estimate, £103 9s. 10d.]

N.B.—To be made up by the Council's own staff.

TUNBRIDGE WELLS.—For alterations and additions to "The Homestead," for Mr. E. H. Stevenson. Mr. H. C. Lander, architect, 22, Surrey-street, Strand, W.C.:—

Soper & Jones	£713 0 0	Strange & Sons*	£672 10 0
W. E. Judd	699 17 8		

* Accepted.

TO CORRESPONDENTS.

B. & G. (Amounts should have been stated).

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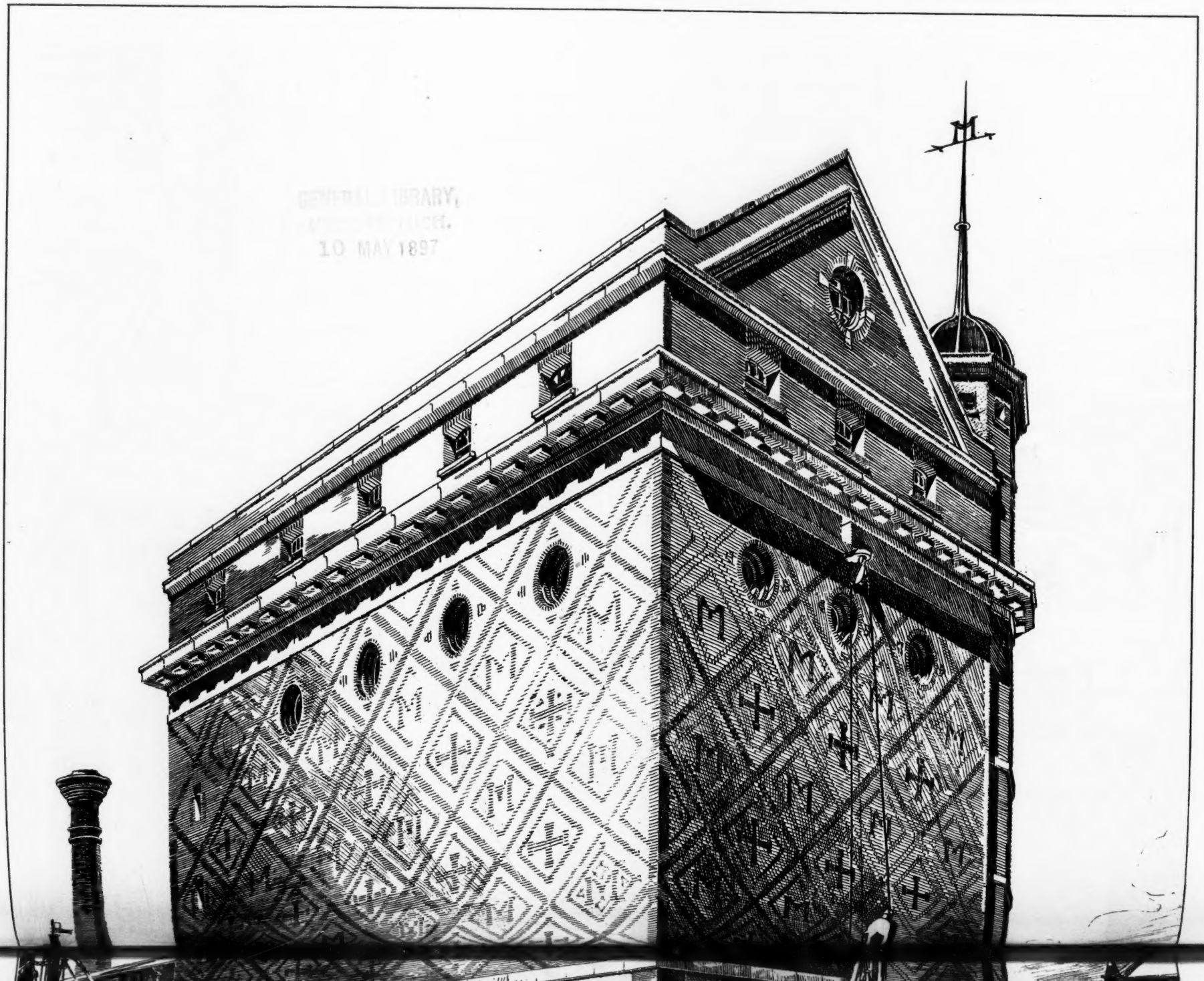

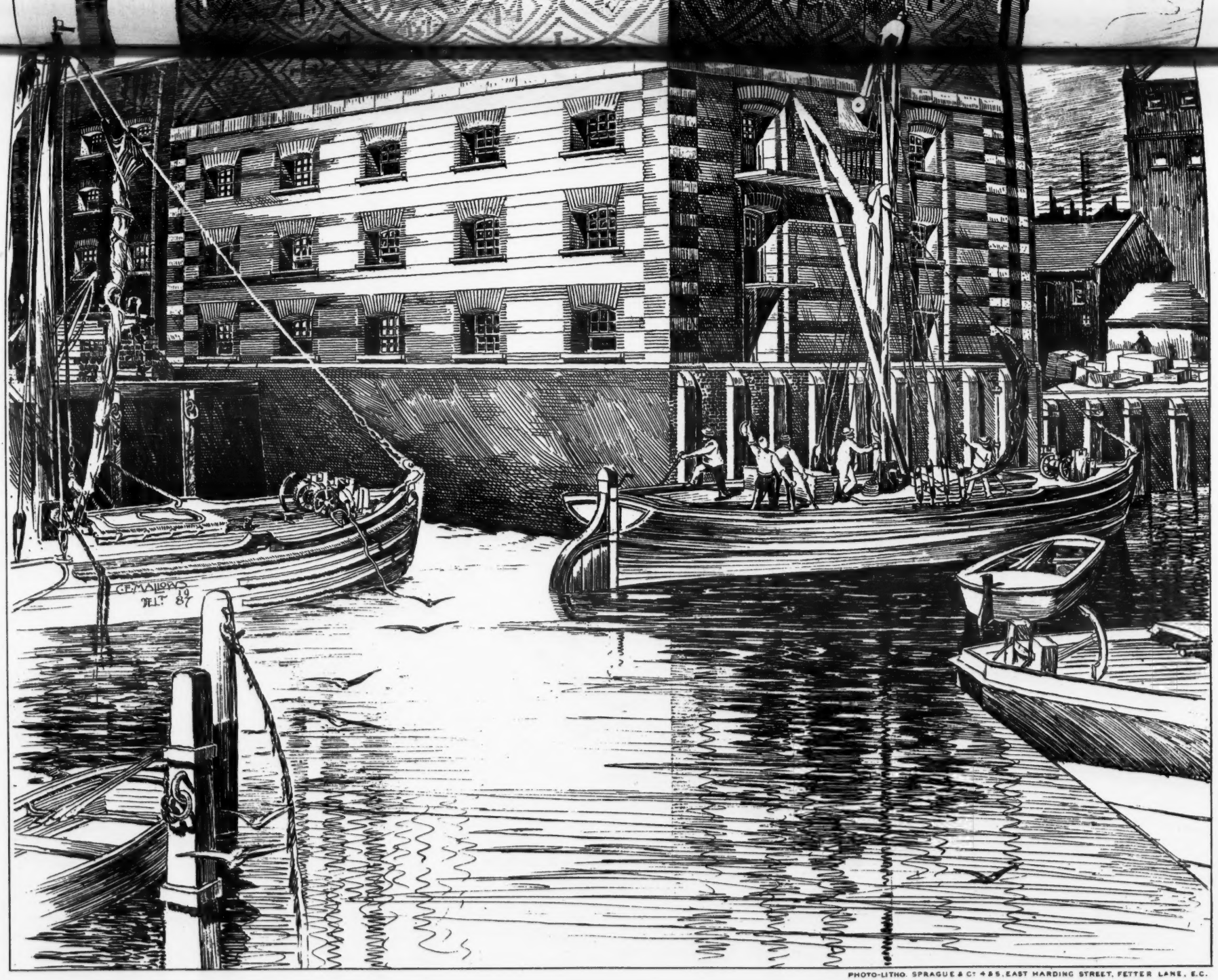

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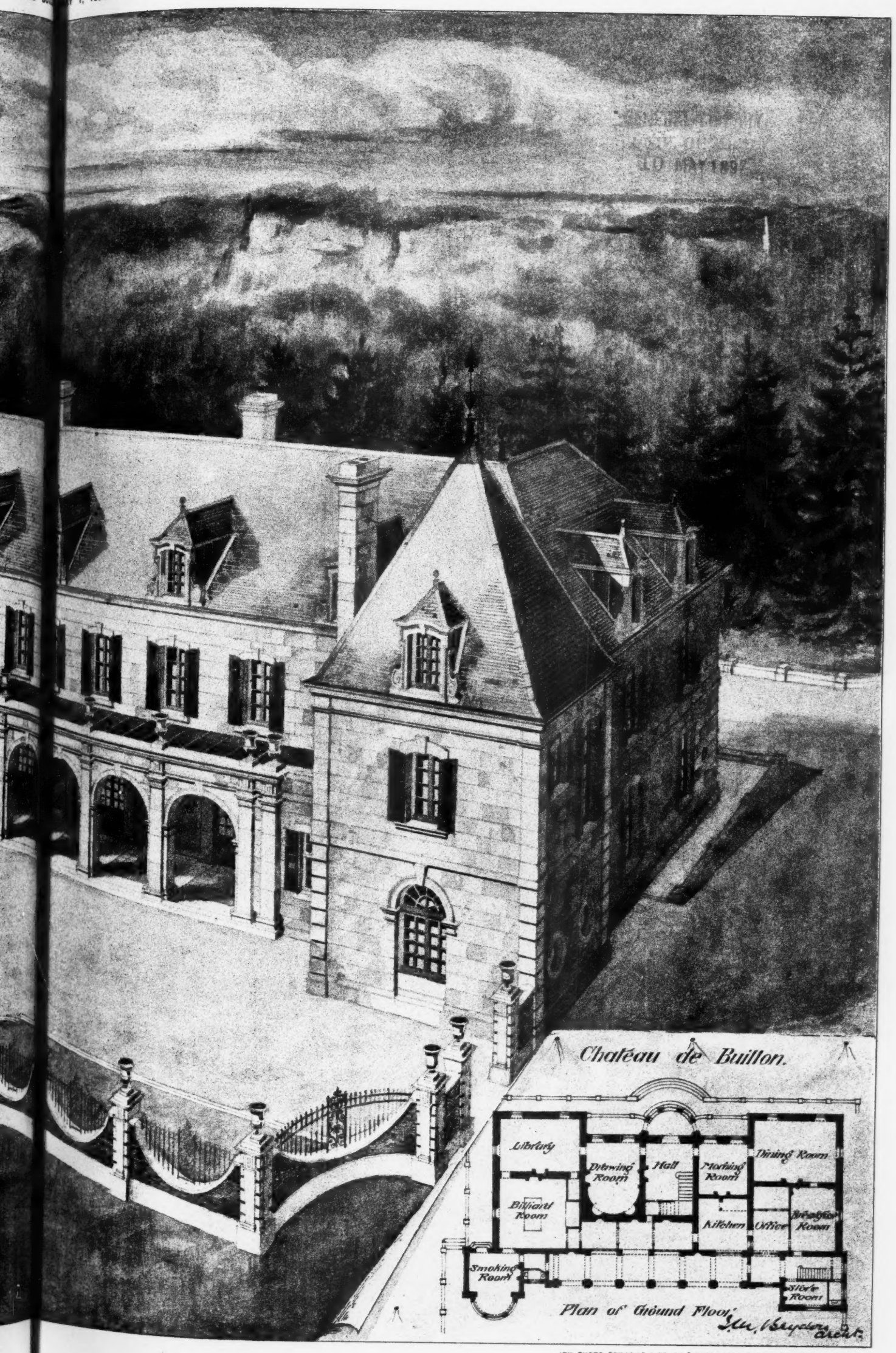

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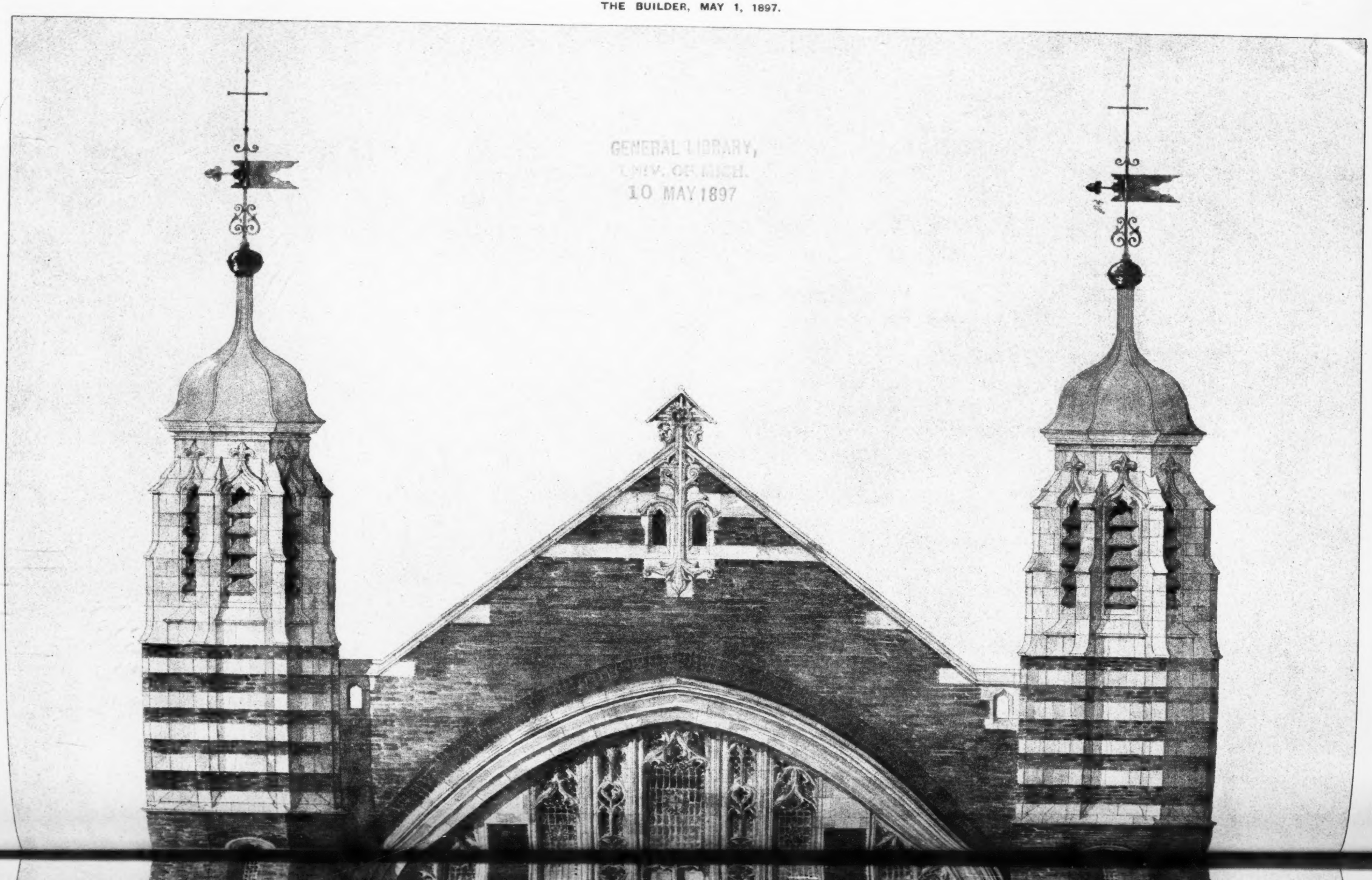

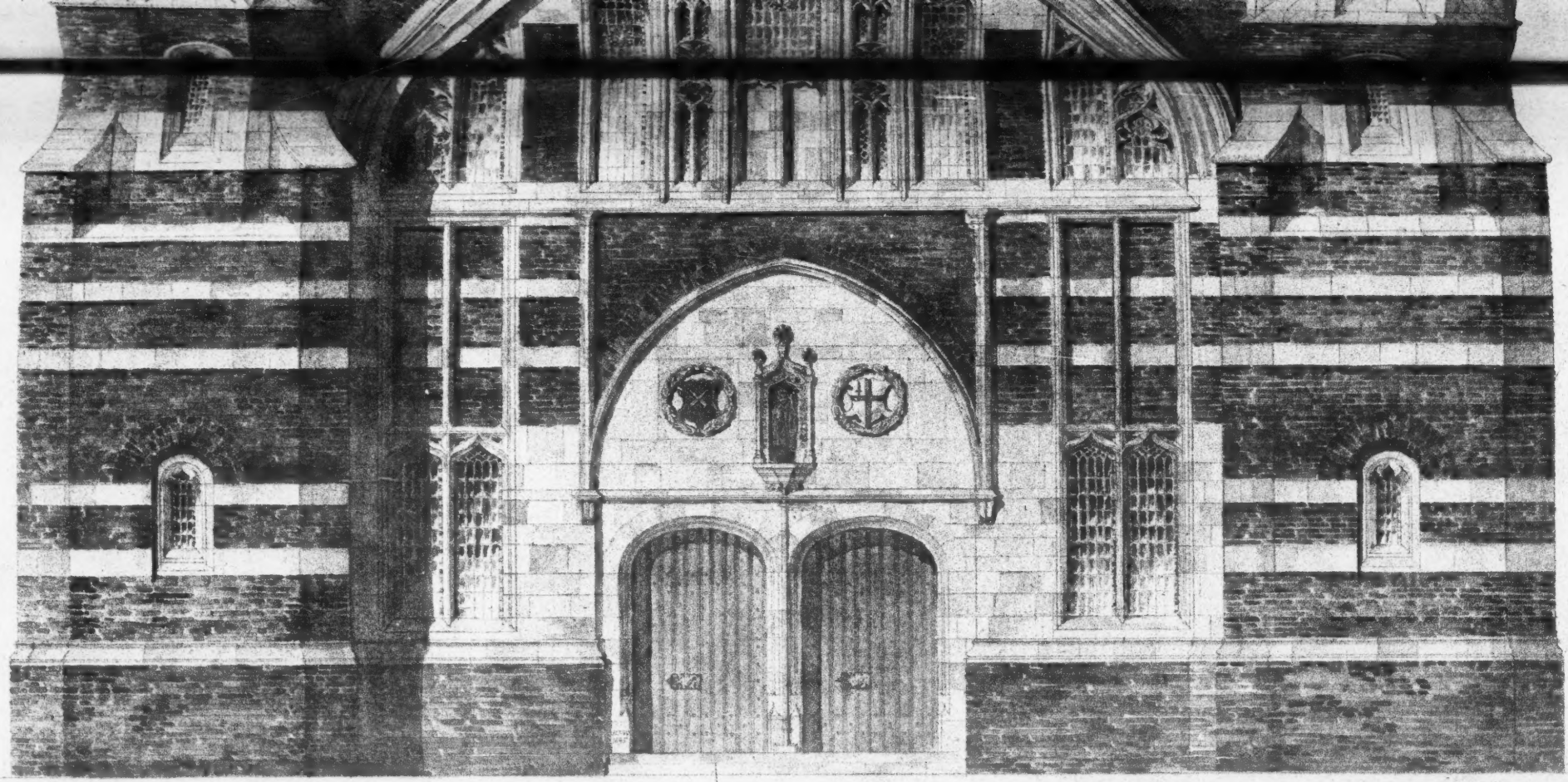

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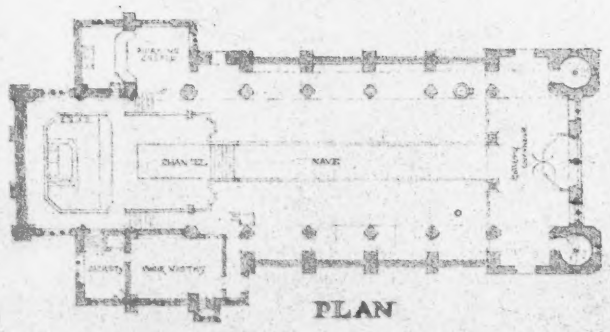

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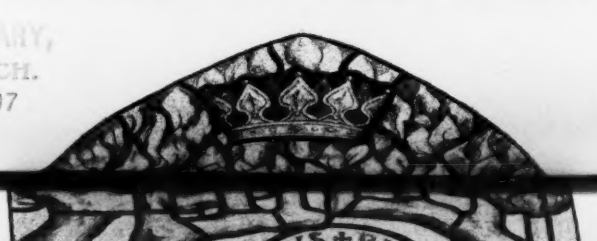

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